The Croonian Lectures
ON
CEREBRAL LOCALISATION.

Delivered before the Royal College of Physicians of London,

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LECTURE III.

MR. PRESIDENT AND GENTLEMEN,—Schäfer's further investigations, in conjunction with Sanger-Brown, led him to agree with Munk that complete unilateral extirpation of the occipital lobe alone caused persistent hemiopia, while bilateral extirpation caused total and enduring blindness. Admitting, however, that the lesions described by them were the cause of hemiopia or total blindness, it does not follow that these results are due to removal of the occipital lobe as such. Schäfer himself[1] admits that the visual area embraces not only the occipital lobe, but perhaps also part, or the whole, of the angular gyrus. The relations of the different portions of the visual centres to the retinæ, founded on the phenomena of electrical irritation as well as other facts, necessitate that the angular gyrus (its posterior limb at least, according to Schäfer) should be included in the visual area, more, therefore, than the occipital lobe proper. If total blindness, therefore, is caused by removal of the occipital lobes in the line of the parieto-occipital fissure, it is necessary to suppose that by this operation the medullary connexions of the whole of the visual area become implicated. Schäfer[2] has himself suggested that fibres connected with the cortex of the adjoining parts of the brain, and especially of the angular gyrus, may be cut off along with the occipital lobe, and that this is the real explanation is supported by many considerations.[3]

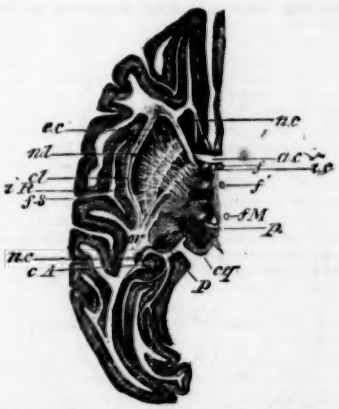
Lesions of the occipito-temporal region alone are competent to produce hemiopia or complete blindness, according as the lesion is unilateral or bilateral, altogether apart from affection of the angular gyrus or any other portion of the occipital lobe. I have myself recorded instances[4] in which lesions of the occipito-temporal region were followed by temporary hemiopia, and probably similar facts have led Luciani to extend the visual area into the temporal lobe. But not only may temporary hemiopia occur, but the hemiopia so produced may be persistent.

Here is an illustration[5] of the brain in one of Brown and Schäfer's experiments. The operation consisted in removal of the right temporal lobe. Posteriorly, the lesion extended partly over the under surface of the occipital lobe. With the exception of this lesion of the occipital lobe all the rest of the visual sphere was intact, yet this animal was completely hemiopic. The inference is that the lesion severed the whole of the optic radiations, for otherwise it should, on Schäfer's hypothesis, have caused blindness only of the lower portions of the retinæ.

It appears, therefore, that the incision for the removal of the occipital lobe carried along the line of the external parieto-occipital fissure is calculated to sever the whole of the optic radiations of the occipito-angular region, which emerge from the primary optic nuclei about this level. (See Fig. 12.) In support of this I quote the following experiment: I exposed the lower extremity of the left external parieto-occipital fissure, and, inserting a director at this spot between the lower surface of the occipital lobe and the tentorium, passed a stylet bent at an oblique angle along the groove in such a manner as to make a transverse incision a few millimetres in depth across the occipito-temporal region. The result of this was right hemiopia, which, however, speedily passed off, so that it was no longer clearly perceptible on the third day. A fortnight afterwards the right occipito-temporal region was similarly operated upon, the incision this time being made just anterior to the lower extremity of the parieto-occipital fissure. The animal died a month after the first operation. During the whole time it survived it remained absolutely hemiopic towards the left in every part of the visual field. It was found after death (see Fig. 13) that the incision on the left side was shallow and not continuous, being interrupted in the region of the lingual lobule. On the right side the incision extended across the whole occipito-temporal region, and penetrated several millimetres into the substance of the brain, dividing the medullary fibres emerging from the region of the primary optic centres.

Brown and Thompson[6] believe that removal of the occipital lobe on one side causes hemiopia to the opposite side, altogether apart from lesion of the angular gyrus, which they entirely exclude from the visual sphere. They give particulars of a monkey, in which, after removal of the left occipital lobe, right hemiopia resulted, together with right hemianæsthesia, which was still observable on the twenty-sixth day after the operation. One hundred days after the first operation the right occipital lobe was similarly removed. This was followed by complete blindness, but they state that after three weeks the animal recovered vision to some extent towards the left. They assume—but furnish no evidence of the fact—that probably a few occipital fibres had escaped injury during the second operation. The animal died of phthisis on the 231st day. On examination it was found that the entire occipital lobe behind the angular gyrus upon each side had been removed, leaving a clean-cut surface. For some distance around this surface the pia mater was firmly adherent to the convolutions beneath, but it was stated not to have been thickened. It is certain, however, that their first lesion must have extended beyond the occipital lobe, owing to the hemianæsthesia, which does not occur when the lesions are restricted to the occipital lobe itself; and that the removal of the occipital lobes, as such, which they appear to have found equally complete on both sides, did not cause total loss of vision, is shown by the fact which they themselves record, that the animal was still able to see, even if imperfectly, towards one side. In a second experiment

FIG. 12.



Horizontal section of left hemisphere of monkey, on a level with the anterior commissure. Natural size. *a. c.*, Anterior commissure. *c. A.*, Cornu Ammonis. *cl.*, Claustrum. *c. q.*, Corpora quadrigemina. *e. c.*, External capsule. *i. c.*, Internal capsule. *i. R.*, Island of Reil. *f.*, Anterior or descending (Meynert) pillar of fornix. *f'.*, Ascending fibres or Vicq d'Azyr's bundle. *f. M.*, Meynert's fasciculus. *f. S.*, Fissure of Sylvius. *n. c.*, Nucleus caudatus. *n. l.*, Nucleus lenticularis. *o. r.*, Optic radiations (Gratiolet). *P.*, Pulvinar. *p.*, Posterior commissure.

[1] Electrical Excitation of the Visual Area, Brain, April, 1888.

[2] Brain, vol. x., p. 372.

[3] This, however, does not fit conveniently into Schäfer's scheme, which is as follows: 1. The whole of the visual area of one hemisphere is connected with the corresponding lateral half of both retinæ. 2. The upper zone of the visual area of one hemisphere is connected with the upper half of both retinæ. 3. The lower zone of the visual area is connected with the lower part of the corresponding lateral half of both retinæ. 4. The intermediate zone of the visual area is connected with the middle part of the corresponding lateral half of both retinæ (loc. cit., p. 5). The reactions would, however, be fully explained on the assumption that the angular gyrus has relations with the whole of the opposite eye.

[4] Phil. Trans., vol. ii. 1884, Experiments 27 and 28.

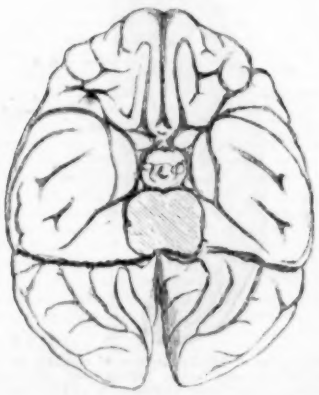
[5] Figs. 4a, 4b, Phil. Trans., 1888, B. 30, plate 49.

[6] Op. cit.

they found that destruction of the left angular gyrus caused no result beyond hemianæsthesia on the right side, together with some paralysis of the right arm (!). On the ninetieth day a second operation was performed, consisting in excision of the whole of the right occipital lobe. This was followed by left hemiopia, which still persisted when the paper was written, seventeen months after the operation. These are the only experiments on monkeys which these authors have recorded. Lannegrace,[7] on the other hand, who has performed numerous experiments on the occipital lobes and angular gyri of monkeys, states, in accordance with my own and Yeo's results, that destruction of the occipital lobe causes no appreciable impairment of vision, whereas destruction of the angular gyrus produces crossed amblyopia of a temporary character. He reports two cases of successive lesion of the angular gyri. In the one the first lesion induced crossed amblyopia, which lasted four days. The second lesion, however, produced no appreciable alteration. In the other the first lesion again caused crossed amblyopia, which disappeared in two days, while the second gave rise to lasting amblyopia. These results, which are similar to those obtained by Yeo and myself, depend no doubt on the degree of completeness of extirpation of the gyri.

I have already mentioned that my earlier experiments, as well as those made by Professor Yeo, show that unilateral destructive lesion of this gyrus caused temporary blindness of the opposite eye, and that bilateral destruction caused for the time complete blindness in both eyes.

FIG. 13.



Though these results have been much questioned, I must insist on their accuracy. I have corroborated the occurrence of apparently complete blindness of the opposite eye, on destruction of the left angular gyrus in an animal which I lately made the subject of experiment. In this animal I had previously enucleated the left eye, so as to exclude all complications from this side. After removal of the left angular gyrus, however, the animal, though otherwise well and in complete possession of all its senses and motor powers, was evidently absolutely blind. It responded to no test of vision; would not move from the spot, but when urged to move sprawled blindly and helplessly. This condition lasted for several hours, during which it was under observation. Next day there were indications of vision, but the animal had become so prostrated, the weather being intensely cold, that it died before any further exact observations were possible. That lesions of the angular gyrus may cause implication of the optic radiations is possible, but this result is neither necessary, nor would it account for complete loss of vision in the opposite eye. The bilateral relations of the angular gyrus account for the transient nature of the amblyopia which results from unilateral extirpation, and, as in few of my experiments was the destruction of this gyrus complete on one side or the other, it occasionally happened that removal of the other gyrus some time subsequently did not seem to impair vision either on one side or the other. When, however, the angular gyri are completely destroyed on both sides, the animal, though for the first three or four days absolutely blind, does not remain so permanently, but it never regains normal vision. This also has been confirmed by the researches of Lannegrace. Apart from the affection of vision, destruction of the angular gyrus causes no other symptoms, either motor or sensory; there is no ptosis or paralysis of the ocular muscles, and the sensibility of the conjunctiva is absolutely unimpaired.

These results, confirmed by the researches of Horsley and Schäfer, contradict the statement of Munk that the angular gyrus is the sensory sphere of the eyeball; and it will be found, on examination of Munk's own data, that the phenomena on which he relies as indicating loss of the sensibility of the eye are in reality due to loss of vision. Thus, he says, that after destruction of the left angular gyrus approximation of the finger to the left eye invariably caused winking, whereas the same threat against the right eye caused only winking when the eyelids were actually touched. This appears to be a proof of the sensibility of the eye, and the non-perception of threatened danger at a distance. The absence of winking at threatened danger he admits to be characteristic also of blindness; but he argues that inasmuch as the animal could not be blind, presumably because the occipital lobe was intact, therefore the non-occurrence of winking could only be due to the inability of the cortex to act on the sphincter palpebrarum! Again, he says that when the angular gyrus has been destroyed on one side, and the eye on that side closed, the animal often fails to seize things offered it or thrown down before it, especially when the objects are small. This I consider a clear indication of amblyopia. And he also states that after bilateral extirpation of the angular gyrus of monkeys, "after incomplete restitution"—a phrase, however, which is not very intelligible—are unable, like normal monkeys, to take things offered them delicately with the fingers, but make grabs at them with the whole hand. This is only a further illustration of the same imperfection of vision which I have described—namely, want of precision in prehension, and a continual tendency to place the hand over, or short of, the object aimed at, instead of on it at once.

Schäfer also[8] records the symptoms in a monkey in which he destroyed both angular gyri. For the first few days the animal appeared totally blind, but vision gradually returned, and before long was quite good for distant objects. The animal could apparently see small objects, such as a raisin, at a distance, but on running up to it seemed to have some difficulty in finding it. Schäfer is of opinion that this latter fact is due to absence of vision in the antero-superior and lateral portions of the retinæ. I have lately carefully investigated the condition of vision in a monkey in which I had completely destroyed both angular gyri. There was no ptosis, the ocular movements were normal, the conjunctival reflexes unimpaired, sensibility was intact everywhere, and the motor powers were perfect, but for four days at least the animal was evidently absolutely blind. When urged to move, it ran against every obstacle in its path, paid no attention to threats, could not find its food except by groping, and appeared insensible to light flashed in its eyes. On the fifth day there were evidences of returning vision. It did not now knock its head against obstacles, would not walk over the edge of the table, showed signs of perception of light flashed in its eyes, and occasionally seemed to wince when threatened. Vision gradually improved, but continued very imperfect, especially for minute objects, which it rarely, if ever, seized quite precisely, groping at them with the whole hand, and reaching short, or over, or to the side. It appeared to see objects held above, below, and to either side much better than those held in front of its eyes. Six weeks after the operation my colleague, Professor McHardy, examined the animal, which was very docile, with me, testing every portion of the visual field by pieces of apple suspended by a delicate thread. It was concluded that vision was better in every part of the periphery than in the centre. Objects held directly before the eyes and at a little distance were apparently not clearly seen, and never laid hold of with precision. The condition remained unchanged for three months after the operation, similar tests being from time to time applied, and with the same result. I noted also that the animal, when examining any object, always held it at full arm's length from its eyes. The phenomena observable in this animal were such as would be best explained by impairment or

[7] Op. cit.

[8] Brain, July, 1888, p. 159.

loss of central vision; for it is well known that when central vision is lost or impaired in man, objects are better seen at a distance than close at hand, and less distinctly when the eyes are immediately converged on them. This is practically the condition seen in this animal. The loss of central vision would thus account for the fact, noted by Schäfer in his animal, that objects were better seen at a distance than near at hand, and that Munk's animal could never place its fingers precisely on any small object held directly in front of its eyes. There was certainly no indication, but the reverse, that the upper portions of the retinæ were less sensitive than the lateral and lower portions. It appears to me, therefore, that the symptoms resulting from bilateral destruction of the angular gyrus, described by myself, Munk, and Schäfer, are best explained on the supposition that the angular gyri are more particularly related to the area of distinct vision, and, accordingly, with the maculæ luteæ. The facts of disease in man render it necessary to assume that the region of the yellow spot is represented in each hemisphere, though more in that on the opposite than on the same side, and the probability is that the area of clear vision is represented mainly in the angular gyrus of the opposite hemisphere.

The retinal relations of the visual centres are not capable of being explained by a simple division of the retinal fields into correlated halves projected on the corresponding side of each hemisphere. For unilateral lesion of the angular gyrus produces a temporary blindness or amblyopia of the opposite eye; while bilateral destruction induces an enduring impairment of visual acuity in both eyes.[9] The results of my experiments seem to show that the angular gyrus has relations with both eyes. The crossed action, however, is the only one which is clearly demonstrable in the lower animals, but this does not exclude the possibility of some impairment of vision on the same side, not perceptible by tests applicable to them. It is certain that in man affections of the visual centres occasionally produce crossed amblyopia, and not homonymous hemiopia. Not only is this characteristic of the visual disturbances seen in hysterical hemianæsthesia, the pathology of which is obscure, but it has been noticed also in cases of organic disease. Usually, along with the blindness or great impairment of vision in the opposite eye, there has been some degree of contraction of the visual field of the eye on the same side. I have myself reported several such cases,[10] and Gowers[11] has also seen similar instances. A well-observed case of this nature has been recorded by Sharkey.[12] Post-mortem examination revealed softening and absorption of a considerable area of the opposite hemisphere, including the angular gyrus. The occipital lobe was intact, and in nowise reduced in size as compared with the other.

A distinguishing test between tract and central hemiopia has been suggested by Wilbrand,[13] and advocated by Wernicke and Seguin, which consists in determining whether a pencil of light thrown on the blind side of the retinæ induces contraction of the pupil or not. As the optic tract is the path of the fibres which excite pupillary contraction through the oculo-motor centres, as well as those which excite visual sensation in the cortex, lesion of the optic tract will cause not only hemiopia, but also paralysis of the reflex reaction of the pupils to light; whereas lesion of the cortical centres will cause hemiopia, but leave intact the pupillary reaction. This test, however, requires great care in its application, as it is difficult to restrict the rays of light entirely to the blind side. In a case recently under my care at King's College Hospital,[14] in which the dividing line passed through the fixation point, and which was carefully investigated in this relation by Professor McHardy and myself, the pupillary reaction was not obtained, as a rule, when the pencil of light was thrown on the right side of the retinæ; whereas it occurred readily when the light was thrown on the left half of each retina. These facts, therefore, would corroborate the hypothesis that this was a case of tract hemiopia.

I have recently verified the hemiopic pupillary reaction in two monkeys, in which I accidentally severed the optic tract in establishing lesions of the temporal lobe. The result in both cases was absolute hemiopia to the opposite side. In both cases the left optic tract was divided, and in both, along with right hemiopia, there was absence of reaction of the pupil when a fine pencil of electric light was thrown on the left half of each retina; whereas active reaction took place when the light was thrown on the right half. Both in the monkey and in several cases of hemiopia in man depending on lesions of the hemisphere I have found that the pupillary reaction is equally well marked whichever side of the retina is illuminated. There can be no question that in man and monkeys there is decussation of the optic tracts in the chiasma. Michel, in his comparatively recent monograph,[15] still maintains the contrary, on the basis of microscopical investigation; but his results have been attributed by Singer and Münzer[16] to imperfect methods of examination.

In reference to the pathology of crossed amblyopia from lesion of the angular gyrus in the monkey, as well as of similar cases of disease in man, I may here allude to the hypothesis advanced by Lannegrace. Lannegrace regards the eyeball as innervated by two sets of fibres—sensorial, or optical proper, and sensory, on which the proper nutrition of the eyeball depends. The sensorial or optical decussate in the chiasma, and are distributed to the occipital lobe; while the sensory decussate in the pons, and, applying themselves to the posterior fibres of the internal capsule, are distributed mainly to the angular gyrus. Lesions of the sensory fibres produce amblyopia and sensory disturbances in the eyeball. A similar result follows lesion of the angular gyrus, and is essentially dependent upon changes which are induced in the nutrition of the eye. This hypothesis would require that in all cases of amblyopia from cerebral lesion there should be impairment of sensation in the eyeball. But this is certainly not the case, for though in hysterical amblyopia there is affection of common sensation as well as of vision, it is not so in the amblyopia following destruction of the angular gyrus. Though affections of the fifth nerve, which cause loss or impairment of sensation of the eyeball, frequently also lead to trophic disorders of the eye, yet this is not necessarily so; and even when the eyeball is absolutely anæsthetic, provided that no trophic disturbances have occurred, vision is not in the least impaired. In proof of this I would refer to cases (Cases 1 and 3) reported by Hutchinson in the Ophthalmic Hospital Reports, vol. iv., 1863–65. Nor does complete anæsthesia of the eyeball induced by cocaine impair visual acuteness.

These appear to me to be fatal objections to the hypothesis advanced by Lannegrace, and I contend that the only hypothesis which seems to harmonise with all the facts is, that the angular gyri are more particularly the centres for clear vision, each mainly for the eye of the opposite side. Whether the other portions of the retinæ, upper, lower, outer, and inner, are specially represented in corresponding regions of the occipital lobe, according to the hypotheses of Munk and Schäfer, cannot be said to have as yet been established; for, even after the most extensive destruction of the occipital lobes, no portions of the retinæ appear to be absolutely blind; hence, even if we admit that the effects of irritation probably indicate a special relation of the different portions of the visual field to certain portions of the occipital cortex, the relation, so far as we may judge by the facts of disease or experimental lesion, does not seem to be an exclusive one.

It is true that in man we sometimes find, besides general hemiopic deficiency, partial, quadrant, or sector-like, defects in the upper or lower halves of the visual field. These appear, however, to be merely incomplete hemiopia; and occasionally, as in the case which I show you, an islet of subnormal visual acuity may be seen in the defective half. The pathology of these sector-like defects is a matter of conjecture. They have not been conclusively brought in relation with lesions of any particular portion of the cortex, and the probability is that they are dependent rather upon partial lesions of the optic radiations than of the cortical centres themselves. This was without doubt the pathology

[9] This accords with Gowers' hypothesis that "on the outer surface, in front of the occipital lobe, there is a higher visual centre in which the half fields are combined, and the whole opposite field is represented." (Diseases of the Nervous System, vol. ii., p. 19.)

[10] Cerebral Amblyopia and Hemiopia, Brain, vol. iii., p. 456.

[11] Diseases of the Nervous System, p. 19.

[12] Medico-Chirurgical Transactions, vol. lxvii., 1884.

[13] Op. cit.

[14] The patient was a man aged thirty-nine. Two years before he had contracted syphilis, and at the time of his admission was suffering from a large tertiary ulcer in the soft palate. He had twitching of the right side of the face, together with weakness and numbness of the left side. The left hand grasp was weak, and there was loss of dorsal flexion of the left foot. The tongue deviated to the right on protrusion. He was found to be absolutely hemiopic towards the left side, and a careful perimetric examination by Professor McHardy demonstrated that the dividing line passed exactly through the fixation point, as will be seen in the chart which I show you.

[15] Ueber Schnerven-Degeneration und Kreuzung, 1887.

[16] Beiträge zur Kenntniss Schnervenkreuzung, 1889.

in the case which I have alluded to, for the defect occurred in a patient who had a sudden attack of hemiplegia accompanied by hemianæsthesia and some affection of speech.

It is doubtful whether there are on record any cases of strictly cortical lesions of the occipital lobe proper, accompanied by hemiopia, apart from direct or indirect implication of the optic radiations. In most of the cases of hemiopia which have been examined after death, in which the optic tracts, optic thalami, or corpora geniculata have not been obviously diseased, the lesions have been found in the medullary fibres of the posterior region, vaguely or inaccurately called the occipital lobe; or, if the cortex has been mainly affected, the lesions have been multiple and diffuse, and not confined to the occipital region. And, in addition to hemiopia, there have been hemiplegia, hemianæsthesia, aphasia, or other symptoms of implication of the cerebral tracts and centres beyond those of the occipital region.

Under my direction my friend and pupil, Dr. Ewens, has collected and analysed the majority, if not all, of the recorded cases of hemiopia (with necropsies) depending on cerebral lesions which have not obviously been of such a character as to cause indirect and indefinite implication of other regions. Of 41 cases of hemiopia, 15 were from disease of the occipito-angular region, 2 were cases of disease of the angular and supra-marginal gyri only, and 13 were described as being from disease of the occipital lobe alone; of these 15, there were only 2 (Hun's case[17] and Doyne's case[18]) in which there was not either a tumour, cyst, abscess, or softening of the medullary substance of the occipital region, or another lesion affecting the optic thalamus; and in 1 of these cases (Doyne's) the position of the lesion was not accurately described.

In the other cases the lesions were of a diffuse character, 6 being from lesion of the occipito-temporal region, and 3 from lesion of the occipital, temporal, and parietal lobes simultaneously, the angular gyrus being implicated in all.

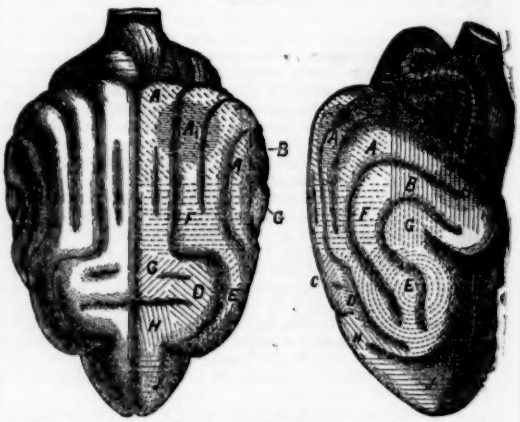
From the comparative frequency with which hemiopia has been found associated with lesions of the cuneus and its neighbourhood, Seguin[19] and Nothnagel[20] are of opinion that this portion of the occipital lobe has a special relation to visual perception; while Wilbrand believes that the visual centre is more especially in the apex of the occipital lobe. These hypotheses are not supported by experimental research. The probability is that any apparent relation between lesions of the cuneus and the occurrence of hemiopia is due to the special proclivity of this region to affection by morbid vascular conditions, and to coincident implication of the optic radiations of the occipito-temporal region. In Seguin's own case,[21] on which he relies in support of his hypothesis, not only was the cuneus implicated, but also the fourth and fifth temporal gyri and a part of the gyrus hippocampi.[22] Cases have also been recorded in which not only unilateral but bilateral lesions have been found in the occipital lobes without any affection of vision whatever.

Irritative lesions of the angular gyrus occasionally give rise to optical illusions or flashes of light, followed by temporary amblyopia, as recorded by Hughes Bennett;[23] while destructive lesions of the angular gyrus, more particularly in the left hemisphere, are generally associated with the special form of sensory aphasia termed "word-blindness" (Kussmaul). Word-blindness is not necessarily accompanied by any noteworthy affection of visual sensation, though in some cases, where the lesion of the occipito-angular region is more extensive, there may be a greater or less degree of right hemiopia.

On the other hand, right hemiopia pure and simple, is not necessarily associated with any defects in visual ideation. This would be an argument against its cortical nature. The fact that visual ideation, more particularly in reference to the association of written symbols with their meanings, is apt to suffer more readily than simple perception, appears to me to illustrate the laws of the evolution and dissolution of the nerve centres, which have been so ably expounded by Hughlings Jackson in his Croonian Lectures delivered here a few years ago (1884). As evolution is from the most simple and most stable up to the most complex and least stable, so destructive processes annihilate first of all the higher and last of all the lower functional manifestations. The functions of the visual centres in respect to mere visual sensation, or simple presentation are much more stably organised than those which imply visual ideation or re-presentation, and in particular such highly specialised and complex processes as are involved in the association between visual symbols and things signified. Hence, a lesion of the area of clearest vision may paralyse visual re-presentation, while the simpler function of visual presentation, may not be appreciably impaired. In order that this also should be entirely abolished it is necessary that every trace of the given centre should be extirpated. In other words, re-presentative blindness will occur sooner than presentative blindness, and the former more readily in its most specialised modes of manifestation.

In regard to the visual centres of the lower vertebrates, I cannot quote many observations or experiments of my own. The visual centres of dogs have been the chief subject of physiological investigation. Hitzig[24] first noted the occurrence of blindness in the opposite eye from destruction of the occipital region in dogs; and in 1881 Goltz described an affection of vision resulting from destructive lesions of the opposite cerebral hemisphere, which, however, he did not specially associate with lesions of the occipital lobe, though he has more recently admitted this relationship. The affection in question was, in his opinion, not complete blindness, but an inability on the part of the animal to understand or interpret what it saw. To this condition he gave the name *Hirnschschwäche*, or cerebral amblyopia. It was entirely crossed, and affected only the eye on the side opposite the lesion. Munk, in his first experiments, arrived at essentially the same conclusion—namely, that the affection of vision resulting from lesion at the point A, Fig. 14, occurred only in the opposite eye. Dalton[25] also found that the opposite eye was rendered blind, and to all appearance permanently so, when the cortex was destroyed in the region of the posterior division of the second external convolution, which he terms the angular convolution. Luciani and Tamburini, on the other hand, found that destruction of the second external convolution, more particularly of its median or parietal portion, caused blindness of the opposite eye, and also some degree of amblyopia of the eye on the same side. The further experiments of Munk, however,

FIG. 14.



Cortical centres of the dog, after Munk. *A*, Visual area. *B*, Auditory area. *C* to *J*, Tactile sensory area (Fühlsphäre). *D*, Fore-limb region. *C*, Hind-limb region. *E*, Head region. *F*, Eye region. *G*, Ear region. *H*, Neck region. *J*, Trunk region.

[17] Amer. Journ. Med. Sci., 1880, Case 1.
[18] Ophthal. Soc., Nov. 14th, 1889.
[19] The Journal of Nervous and Mental Diseases, vol. xiii., Jan. 1886.
[20] Neurolog. Centralblatt, 1887, p. 213.
[21] Op. cit.

[22] Since this was written a case has been put on record by Delépine (Trans. Path. Soc. Lond., May 20th, 1890) in which right hemiopia was apparently associated with softening of the left cuneus. In this case, however, there was general arterial degeneration, and there were many circumscribed patches of softening in various parts of the brain. In particular there was a small area which had destroyed the greater part of the middle occipital convolution. This case is, therefore, too complex to allow of exact conclusions as to the connexion between the hemiopia and the lesion of the cuneus in particular.

[23] Excessive Sensory Cortical Discharges and their Effects, THE LANCET, March 30th and April 6th, 1889.

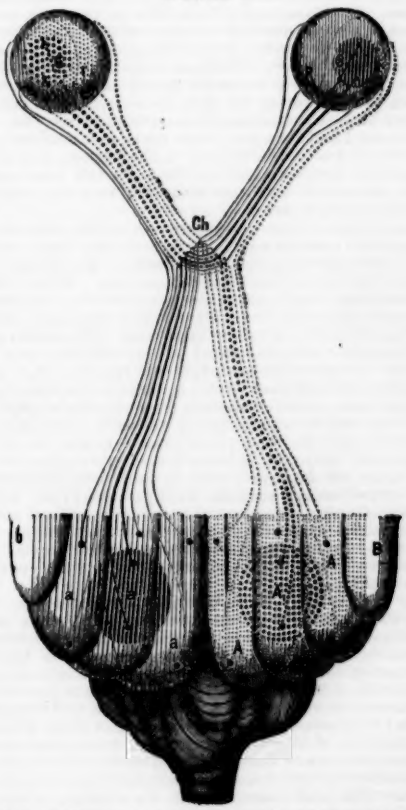
[24] Centralblatt f. Med. Wissenschaften, 1874.
[25] Centres of Vision in the Cerebral Hemispheres, Med. Rec., 1881.

as well as those of Loeb[26] and of Goltz,[27] and also the later experiments of Luciani,[28] appeared to show that, though in dogs the visual area is mainly in relation with the opposite eye, it is also in relation with the outer quadrant of the eye on the same side. Hence destruction of the visual centre in the one hemisphere paralyses the inner three-fourths of the opposite retina, and the outer fourth of the retina on the same side. The condition, therefore—at least the enduring one—is that of homonymous hemiopia towards the opposite side, the defect in the eye opposite greatly exceeding that in the eye on the same side. But the facts recorded by Luciani and Tamburini indicate that, for a short time at least, after the destruction of the middle portion of the second external convolution there is blindness in the opposite eye. And Goltz[29] remarks that he does not think that his former conclusions were due to defective observation, but that there was probably some variation in his operative procedure. It is, however, likely that we have here the same relations as exist in monkeys, and that for the time at least, after complete extirpation of the visual sphere, there is total blindness in the opposite eye. This is confirmed by the experiments of Bechterew, recently published.[30] Bechterew finds that in dogs and cats there are two regions in the cortex related to vision: the one in the occipito-parietal region, in relation with the corresponding halves of both retinæ; the other, more especially in the parietal region, in relation with the opposite eye alone. Lesion of the former causes homonymous hemiopia; lesion of the latter, generally possible only in association with the former, causes along with hemiopia amblyopia of the opposite eye by paralysing the centre of clear vision. This combined affection usually after a time gives place to homonymous hemiopia, or, on the contrary, the hemiopia disappears and the crossed amblyopia remains. Bechterew's conclusions may serve to explain, among others, the results arrived at by Gilman-Thompson, and Sanger-Brown,[31] which appear to be entirely at variance with those of Munk, Goltz, and most other physiologists. For they find that lesions of sufficient size and depth, in the posterior part of the occipital region in cats and dogs, invariably cause blindness of the opposite eye, with no impairment of vision in the eye of the same side. These authors, however, seem to think that the extent of the visual sphere is a matter more of cubical capacity than accurate anatomical localisation; for they say that, in order that the blindness should be permanent, between 2·5 and 3 cubic centimetres of brain tissue should be removed in cats; and between 4·5 and 6 cubic centimetres in dogs. To render the blindness permanent, the incision must be at least ·5 centimetre deep, and 2 centimetres in diameter, in cats; and 1 centimetre deep, and 3 centimetres in diameter, in dogs; and it must involve at least two convolutions. Smaller lesions produce complete blindness of the opposite eye, lasting from a day or two to six weeks. They conclude from their experiments that in cats and dogs there is complete decussation of the optic nerves in the chiasma. This is, however, opposed by the researches of v. Gudden,[32] which show that in dogs and cats there is partial decussation of the optic tracts; and Nicati[33] found, experimentally, that division of the chiasma in the antero-posterior or sagittal diameter did not cause complete loss of vision in either eye. The recent researches of Singer and Münzer, previously alluded to, indicate that there is only partial decussation in the chiasma of the cat, dog, and also in the rabbit.

The exact limits of the visual sphere in dogs are still the subject of some differences of opinion, but all the experiments agree in including in this area the posterior half of the second external convolution. This is the convolution which in its electrical reactions corresponds with the angular gyrus and occipital lobe in monkeys. The visual area, as defined by Munk, is represented in the accompanying figure (Fig. 15). Point A, situated chiefly in the posterior division of the second external convolution, he regards as the centre of clear vision (macula lutea) of the opposite eye. The mesial portion of the visual sphere adjoining the falx he regards as the centre for the inner half, the anterior portion for the upper half, and the posterior portion for the lower half, of the opposite retina. The lateral portion he regards as the centre for the outer quadrant of the eye on the same side. Destruction of each portion, he states, induces blindness in the respective region of the eye on the opposite or same side accordingly, and it is only by abnormal fixation of the eyes, or by practice, that the animal is able to overcome the defects so induced.

Munk describes, as the effects of extirpation of a circular area of the cortex in region A, measuring about 15 millimetres in diameter and 2 millimetres in thickness, a condition of vision, or visual perception, similar to that already defined by Goltz. The animal is not blind, inasmuch as it is able to avoid obstacles, but it appears to have lost all visual ideation. To this affection he gives the name *Seelenblindheit*, or "physical blindness," in contradistinction to *Rindenblindheit*, or "cortical blindness," which implies

FIG. 15.



Relations of the eyes to the visual area in the dog, after Munk.

total loss of vision presentative, as well as re-presentative. In explanation of this condition he propounds what appears to me a somewhat crude hypothesis—viz., that extirpation of the region in question has removed all the visual pictures which are stored up in and around the spot, and that it is only by a process of education that the animal again acquires a new stock of pictures which are deposited in the undestroyed portion of the visual sphere. Some pictures, however, apparently less fragile than the rest, may escape the general destruction occasioned by this iconoclastic lesion. In one case it is the picture of the dish out of which the animal has been accustomed to drink, in another it is the sign to "give the paw," which the animal has been accustomed to obey. Goltz has criticised this hypothesis in the following amusing terms:—

"A considerable portion of the cortex of the occipital lobe is described as the visual area by Munk. By far the larger portion of this area, however, is, according to him,

[26] Pflüger's Archiv, 1881. [27] Ibid., p. 459.
[28] Sensorial Localisations in the Cortex Cerebri, Brain, vol. vii., 1885, p. 145. [29] Op. cit., p. 48.
[30] Abstract in Neurolog. Centralblatt, April, 1890.
[31] Researches of the Loomis Laboratory, 1890.
[32] Archiv f. Ophthalmologie, 1874, Band xx.
[33] Archives de Physiologie, seconde série, tome v., 1878.

pure luxus. The memorial pictures (*Erinnerungsbilder*) of the visual perceptions are huddled together like sheep in a storm, in a narrow spot which occupies only about two-sevenths of the whole visual area. When this small spot, which corresponds to the macula lutea of the human retina, is destroyed on both sides, the animal is at first blind, and only gradually learns to see, like a puppy, with the aid of the rest of its visual sphere. Five-sevenths of the visual sphere—a large portion of the cortex—appear retained in order that a dog which falls into the hands of the physiologist should again learn to see, when its accumulated visual pictures are cut out. All dogs which escape this fate—and these, since the creation of the dog, must be very many—carry during their life five-sevenths of their visual sphere as an uncultivated fallow field. A wonderful thing in hypotheses."[34]

Even if it were the case that the different portions of the retina are represented in the indicated regions of the visual area, it is improbable that these could be determined with any degree of certainty except by exact perimetric investigation, which is naturally impossible in the lower animals. The difficulties of deciding questions of this kind in the lower animals are illustrated by Munk's account of his experiences with rabbits.[35] "I had at least believed that I could determine with which eye the rabbit saw better and with which it saw worse. In this, however, I have been mistaken, because it occasionally happened to me that where from tests I had thought I had made out that the greater imperfection of vision existed in the left eye, post-mortem examination revealed the fact that the left tract and the right optic nerve were more atrophied than the right tract and the left optic nerve."

Loeb, after a series of carefully devised experiments, concludes that there is no foundation for the views of Munk that particular segments of the retinæ are in special relation to definite regions of the visual area. When defect of vision occurs from lesion of the posterior lobe, it is always of the same hemiopic or hemiamblyopic character, whatever portion of the visual sphere be injured. The lateral portion of this sphere is not in special relation with the outer quadrant of the eye on the same side, nor is any portion more in relation with one part of the opposite retina than another. In particular, central vision is precisely that which is least affected in all cases, whether of unilateral or bilateral lesion of the visual zone. There is never any excentric or abnormal fixation of the eyeballs when the special regions indicated by Munk are destroyed, such as would necessarily result if the corresponding portions were paralysed; nor is the recovery of vision, after partial lesions of the visual area, due to practice or to the acquisition of new visual experience, inasmuch as recovery takes place when the animal is kept absolutely in the dark, and thus prevented from exercising its visual faculties.

In rabbits the visual centre would, according to the homology of the electrical reactions, occupy the parieto-occipital region of the hemisphere. The exact limits of the visual zone of these animals do not appear to have been accurately determined by any observer, though certain experiments of Moeli[36] point to lesions of the region indicated as causing at least temporary blindness of the opposite eye. It has been supposed that in this animal there is complete decussation of the optic tracts in the chiasma, inasmuch as the experiments of Brown-Séquard have shown that sagittal division of the chiasma causes complete loss of vision of both eyes. The total decussation in the chiasma of the rabbit was also supported by the earlier researches of von Gudden, who found that after enucleation of one eyeball the opposite optic tract only became atrophied.[37] But, in his later researches, he concluded that a small fascicle of uncrossed, or direct, fibres exist also in the optic tract of this animal, similar to that seen in higher vertebrates. Singer and Münzer are also of opinion that there is only partial decussation in the chiasma of the rabbit, but the uncrossed tract does not run as a separate bundle, but as fibres more or less diffused throughout the optic tract. In the mouse and guinea-pig, however, the decussation is a complete one. The partial decussation of the optic tracts in the chiasma would favour the opinion that in the rabbit also both eyes are more or less in relation with each visual zone; and certain experiments of Munk would seem to favour this notion. The point, however, is one which requires further investigation.

In pigeons, and in birds in general, the region which in its electrical reactions is homologous with the visual centre of the higher animals occupies the parieto-posterior aspect of the hemisphere, where it forms a thin lamina over the corpus striatum. McKendrick[38] found that destruction of this region caused blindness in the opposite eye; whereas removal of the anterior part of the hemisphere had no effect on vision, nor removal of the posterior extremity of the hemisphere. Similar results have been obtained by Jastrowitz[39] and Munshold.[40] Blaschko, however, found that vision did not seem entirely abolished in the opposite eye by destruction of the cortex in the region indicated; and Munk came to the conclusion that though vision at first seems entirely abolished in the opposite eye, yet after a time it is regained in the extreme outer or lateral portion of the retina.

It is usually stated that in pigeons a complete decussation of the optic tracts occur in the chiasma, but von Gudden expresses some doubts on this point. Singer and Münzer, however, believe that in the pigeon a total decussation occurs. Munk quotes, in favour of his conclusions, certain observations by Müller, to the effect that in the retina of the pigeon there is, besides the usual fovea centralis, another fovea, situated nearer the temporal region of the retina. The outer foveæ would subserve binocular and the central foveæ monocular vision. These statements have been supported by the ophthalmoscopic investigation of Hirschberg.

It has seemed to me that if any bird can possess binocular vision it should be the owl, whose eyes are placed almost in the same plane. To decide this question I recently completely extirpated the right hemisphere of an owl. The right eye was then securely closed. The owl reacts very readily to visual tests, and is keenly alive to every movement coming within its field of vision. This bird, however, for ten days at least, remained perfectly indifferent to the electric light flashed in its eye and to all kinds of threats, and when urged to move flew blindly against every obstacle in its course. At the end of this time there were indications of vision, which were found, however, to depend on the partial unclosure of the right eye. In order to ascertain if the visual centre of the left hemisphere was undamaged, the right eye was completely freed from its closure. This had the effect of restoring the animal's sight, so far as the right eye was concerned, though no indications of vision could be made out in the left eye. The bird was able to pursue and ultimately catch a mouse introduced into its cage, though the mouse frequently escaped for the time by getting to the owl's left. The right eye was then removed. It then speedily became apparent that the animal was not entirely blind, but could see towards the right with the outer portion of its left eye. It noticed and winced at threats made towards the right, came forward and pecked at pieces of meat held in this position, though its aim was not very accurate, and one day pursued about the cage and ultimately, after considerable difficulty, captured a mouse, which it devoured whole. No doubt can therefore be entertained as to the binocular relations of each cerebral hemisphere in the owl. It is stated, however, by Michel, as well as by Singer and Münzer, that there is total decussation of the optic tracts in this bird. If this be correct, it follows that total decussation of the optic tracts is not inconsistent with binocular representation in each cerebral hemisphere.

My own experiments, as well as those of Munk, Horsley, and Schäfer, show that when the lesions are strictly limited to the visual sphere, vision alone is affected or abolished, without any implication of the other forms of sensibility, general or special, and absolutely without any motor paralysis. The contrary results obtained by some authors are without doubt dependent on primary or secondary injury to other sensory or motor tracts or centres. In Goltz's experiments the affections of vision from injury of the occipital regions appear to have been almost invariably associated with other forms of sensory disturbance; but the manner in which he established his lesions has not been sufficiently definite as to exclude implication of the sensory tracts of the internal capsule, or other sensory regions of the cortex. Whether after destruction of the whole visual sphere in the higher animals, man and monkey,

[34] Op. cit., p. 175.
[35] Sitzungsberichte Akad. d. Wissensch. zu Berlin, vol. xxxi., June 26th, 1889, p. 631.
[36] Archives de Physiologie, 1871-72, Sur les Communications de la Rétine avec l'Encéphale.
[37] Archiv f. Ophthalmologie, Bd. xx., 1874.
[38] Trans. Roy. Soc. of Edinburgh, January, 1873.
[39] Archiv. f. Psychiatrie, Bd. vi., 1876.
[40] Das Sehcentrum bei Tauben, August, 1878.

any form of reaction to retinal impressions, beyond that of the pupil, may continue—as has been contended for by Goltz in the case of dogs, and by Luciani and Tamburini, and Lannegrace even in the case of monkeys—is not supported by clinical investigation, or by my own experiments, or those of Munk on monkeys. Though the monkey rendered blind by total extirpation of its visual centres acquires the power of avoiding obstacles when left amidst its usual surroundings, yet this appears to be due rather to a sharpening of its other faculties, or more attentive appreciation of the impressions made on these by the objects with which it is surrounded, than to visual sensation. The question is, however, one which may well bear further investigation; for if retinal impressions are coördinated with apparently purposive actions in the subordinate centres of the lower vertebrates, such as fishes, reptiles, and birds, there is at least the possibility that similar reactions may be discoverable in the higher animals, even though in a much less degree. It is certain, however, that the visual area of the cortex is not a merely functionally differentiated region capable of replacing, or of being replaced by, other cortical regions, inasmuch as destruction of the visual centres leads to atrophy in the primary optic centres, optic tracts, and optic nerves; and, conversely, destruction of the optic radiations leads to atrophy strictly confined to the regions included within the visual zone. The differentiation of an area exclusively—so far at least as can be judged from clinical and experimental results—would strongly favour the hypothesis that the other sensory faculties are also separately localised in definite cortical regions.

ON HEAD-NODDING AND HEAD-JERKING IN CHILDREN, COMMONLY ASSOCIATED WITH NYSTAGMUS.

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(*Continued from page 1295.*)

CASE 3. *Side to side movements of head after head-injury; subsequent occurrence of nystagmus, vertical in right, horizontal in left eye; peculiar method of looking at objects; rickets; convulsions; fits of laughter.*—Mary G——, aged eight months, was brought to me on Nov. 22nd, 1888. She was the tenth child, and was born at full term without difficulty. Seven children were alive and healthy, but four had had convulsions in infancy. Three children were dead. The child was being suckled, but, in addition, had had Robb's biscuits. She had never had convulsions or any attacks like petit mal. About nine days before I saw her the child fell off a chair, striking the left side of the head. She was not unconscious, and, indeed, did not seem to be much hurt. The part struck was only "a bit red," not bruised. The head began to shake five or six days later. On examination I found her a well-nourished, good-tempered child. There was some beading of the lower ribs at their junction with the cartilages, and the wrist-ends were thickened. There were no teeth. The fontanelle was open, but not unduly prominent. The part of the head struck I found to be just to the left of the fore part of the anterior fontanelle, and here there was a small scab, but no tenderness, bruising, or sign of fracture. The movements of the head were horizontal, with a tendency to go more to the right and downwards. The mother had never seen any movements of the eyeballs, and there was no nystagmus when I first saw the child. A little later, however, there was marked horizontal nystagmus, more in the left than in the right eye. It was constant, but worse when the child's attention was directed to an object. The nystagmus still persisted when the head movements stopped. A few days later, Mr. Donald Gunn, in the absence of Mr. Marcus Gunn, examined the eyes, and reported that "the movements of the right were vertical and very fine, of the left much more violent, and nearly horizontal. Vision was good, the ordinary movements of the eyeballs unimpaired, and the discs normal." Within a week the head became steady, and during the next five months the movements occurred only occasionally when the child cut a tooth. In May the patient had four convulsive attacks, preceded by some head-jerking for a day or two. It was noted that the child looked at objects sideways, and usually to the right. During this month she had two more convulsive seizures, but these latter were not preceded by head-movements. During this period the child had occasional fits of laughter. Her intelligence was above the average, and the mother said that she was "very knowing." On July 11th I noted that there had been no fits for three weeks, but that the nystagmus and head-jerking persisted.

CASE 4. *Vertical nystagmus of one eye only following head injury; side to side movements of head four months later; peculiar method of looking at objects; two relapses following falls on the head.* — Frank K——, aged fourteen months, was brought to me on April 19th, 1888. There was a history of three severe falls, the last six weeks previously, when he struck the back of the head. There was no mark visible afterwards, and he did not lose consciousness at the time. He had some bronchitis when the accident occurred. The movement of the eye was noticed a week subsequently to this last fall. There was no history of fits. On examination, no sign of rickets was found. The child was large and rather flabby, but placid, and apparently in fair health. Mr. Gunn reported as follows: "Marked vertical nystagmus in left eye, not constant, but nearly so. No continuous relation between any position of eye or the evident ocular state and the occurrence of the nystagmus. It sometimes disappears momentarily on assuming a new position of fixation with right eye. Pupils active to light. Seems to see with either eye. After a sudden start on ringing a bell, his left eye remained stationary for some time. Excursions of eye good in all directions. Ophthalmoscopically, pupils not well dilated (probably homatropine not well in); there is something preventing accurate details of fundus being seen, but fundus reflex good in both. He seems to see fairly well." A drachm of steel wine was ordered to be taken twice daily. During the next fortnight the nystagmus became less marked. On April 29th Mr. Gunn reported as follows: "Mother thinks he cannot see with left eye. Left pupil acts to light directly, but rather better consensually. Right pupil active. Both discs and fundi normal." On May 17th, when I examined the patient, there were no movements of the eyeball. The mother believed that he could not see with the left eye. When he directed attention to anything he turned his head to the left and "looked out of his right eye." On May 24th I noted that there had been some movement of the eye the previous day, the first time for a week, and that he had had some convulsions with screaming on the evening of the same day. On June 3rd he fell on the left side of the forehead. The next day he had some nystagmus of the left eye, but it only lasted five minutes. From this time to Aug. 9th the absence of the movements was noted from time to time, but my attention was now called to the manner in which he moved his head from side to side in his endeavours to fix an object. This persisted up to Nov. 12th. On that day I made a note of the mother's statement, that on Nov. 7th he fell down fourteen stone steps, bruising his temples. Three days later there were some movements of the eyeball lasting several hours, the first observed for three months. On Nov. 20th he was examined again by Mr. Gunn, who could see no nystagmus. The mother, however, said that it had occurred recently. On Dec. 4th there was slight occasional vertical nystagmus; the child seemed to see well with the left eye; the left pupil acted directly but not fully; the optic discs were normal. On Dec. 11th I noted that there had been no fits or petit mal. The nystagmus was well marked. When his attention was directed to some distant object he shook his head from side to side. A month later the movements of both head and eyes were less marked. It had been noticed for about four weeks that he used to go to sleep with his hands placed on the top of his head, but he made no complaint of pain. Six months later there was still occasional vertical nystagmus of the left eye, though it was less marked. The head movements had not recurred. The pupils were active. The mother still believed that the child did not see with the left eye, as he used to turn his head to the left in order to look out of his right eye. Mr. Gunn, however, was unable to detect any defect of vision. Six weeks later the child was again brought to me, as he had once more had a severe fall, bruising his forehead severely. The nystagmus still persisted, and it had undergone no increase since the fall. The treatment consisted for the most part in the administration of steel wine and cod-liver oil. For a month he was treated with rhubarb and soda, and salt-and-water injections for thread worms. For a time he had also bromide of potassium.

CASE 5. *Lateral nystagmus following a severe head injury;*

recurrence after a year with occasional head movements; peculiar method of looking at objects; convulsions; mental change.—Albert N——, aged fifteen months, was seen first by me on Feb. 8th, 1888. Four weeks previously he fell from a high chair to the floor, striking the left side of his head against the boards. He began to cry loudly, and continued to cry for two hours. He did not lose consciousness or vomit. All the succeeding night he was very restless, and cried much. The next day he was in his usual health, and ceased to be fretful, the mother considering him quite well. A week after the fall a slightly discoloured swelling was noticed on the left side of the head, and in another week the movements of the eyes began. His temper and spirits continued very good, and there was no impairment of intelligence. He was occasionally observed to put his hand to his head, but not to any particular spot. On examination, a depression was found over the left temporal region, two inches and a half behind the external angle of the orbit, the anterior margin being an inch and a half behind and an inch and three-quarters above the external auditory meatus. The depression was circular, and measured an inch in diameter; the centre was soft and bone could be felt at the bottom. The edges were well defined, and it was difficult to say if they were raised above the level of the surrounding bone. At the time there was some doubt in the minds of two of my surgical colleagues as to the exact nature of the injury; but ten days later it was considered most likely to be a hæmatoma. There was marked lateral nystagmus of both eyes, combined with some rotation. The pupils were equal, and reacted to light. Pressure over the seat of injury did not cause any alteration in the movements of the eyeballs. The nystagmus ceased in a day or two without any special treatment, and the child remained well for two months. He then had some fits at night, probably convulsive. At this time there was marked pulsation of the fontanelle. Four months later I saw him again. He had recently had convulsions at night for two days. No recurrence of the nystagmus took place until a year after I first saw him. He then had a return of the lateral nystagmus, this occurring five weeks after an attack of measles. Six weeks later the nystagmus still persisted, and he had occasional head movements. It was noticed that he had a peculiar way of turning his head to the right, so as to look at objects with the left eye. This disappeared in a few weeks. The last time I saw him, eighteen months after the injury, he had been free from movements for five months. His disposition, however, was changed, and this the mother, myself, and others had noticed for several months. He had become less intelligent, was forgetful and irritable, though formerly he was remarked in the hospital for his placidity and good temper. The treatment consisted chiefly in the administration of bromide of potassium in doses of six grains.

I have already described broadly the nature of the head movements. An analysis of eleven cases gives the following detailed results:—In one instance the movements were purely nodding, like those of a mandarin doll (movements of assent). In four, the movements were lateral (negation movements); in one of these the tendency was to go more to the right, and in another to the right and downwards. In one case there was a combination of lateral with rotatory movements, and in three a combination of nodding and shaking or lateral movements. In the remaining two there were sometimes nodding and sometimes lateral movements. Dr. Gee,[1] in referring to two cases reported by Dr. Stephen Mackenzie,[2] remarks that his cases differed from those of the latter observer. I gather, however, that the difference lies simply in the direction of the movements, the patients of the former observer suffering from head-shaking, whereas in those of the latter the movements were nodding associated with rotation. The fact that, in two of my cases, there was alternate nodding and shaking suggests that mere direction is not of essential importance, and that a distinction founded on such a basis is artificial. On looking over Henoch's cases I find the frequent association of two kinds of movements. Nodding, however, occurs either singly or in association, more often in his series than in my own. As regards the muscles concerned in these movements I cannot do better than quote Henoch's remarks: "All these cases show that the movements characteristic of spasmus nutans are almost never confined to the proper muscle of nodding (sterno-mastoid), but also affect the muscles which rotate the head. Nodding, and more or less distinct rotation—generally towards the same side—are almost always combined. Indeed, in many cases, I have found the rotating movement by far the most marked, and the nodding very slight." I have already alluded to the general characters of the nystagmus. It is usually very rapid, probably varying between four to six movements per second. It is often continuous, though aggravated by attention, by efforts at fixation, or by forcibly restraining the head movements. Occasionally nystagmus will make its appearance when the head is held, though previously absent. There is sometimes a relation between the nystagmus and the position of the eyes or evident ocular state. In Case 2, for example, the nystagmus was exaggerated on extreme conjugate deviation to the left, and least marked on deviation to the right; in another instance the nystagmus was especially evident when the eyes were directed upwards. In Case 4, on the other hand, it will be seen that there was no relation between any position of the eye and the occurrence of the nystagmus. Gordon Norrie of Copenhagen also alludes to a change in the character of the movements when the eyes were turned in certain directions.[3] It was noticed in Case 4, in which the nystagmus was vertical and limited to the left eye, that the movements disappeared momentarily on assuming a new position of fixation with the right eye, and that after a sudden start—as occurred, for instance, after ringing a bell—the left eye remained stationary for some time. Nystagmus is usually present in both eyes, but often one is more affected than the other. In three of my cases the movements were strictly unicular. Case 4 is an illustration in point. In another of my patients in whom there were lateral and rotatory movements of the head there were rapid lateral nystagmic movements (about five per second) of the right eye only, especially marked when the head was steadied. In this patient I also noticed what I have never seen in other cases—namely, slow movements of the eyeballs in a direction opposite to that in which the head was turned. These movements were clearly compensatory. In another of my cases there were rhythmical lateral movements of the head, with horizontal nystagmus of the left eye only. In three of Henoch's patients the nystagmus was uniocular, and in the case recorded by Gordon Norrie the movements were confined to one eye. When the nystagmus is unilateral there appears to be no constant tendency for the head to move in any special direction. In one of Henoch's cases there was nodding and rotation of the head to the right, the nystagmus, which was slight, being limited to the right eye. On the other hand, in one of my patients and in Gordon Norrie's the head tended to move in a direction away from the nystagmic eye.

(To be concluded.)

[1] St. Bartholomew's Hosp. Reports, vol. xxii., p. 26.
[2] THE LANCET, vol. i., 1886, p. 833.

ON THE TREATMENT OF CYSTIC GOITRE, RANULA, AND OTHER CYSTS WITH CHROMIC ACID.

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THE method of treating certain cysts advocated in this paper was suggested to me by the following experience. About six years since I had under treatment a woman, aged fifty, for fibro-cystic goitre involving the right lobe of the thyroid body. The cyst, which extended to within an inch of the angle of the jaw, had been tapped and injected with concentrated solution of tannin, with the result of securing apparent obliteration of the cavity. She continued under occasional observation while the fibrous portion of the tumour was dealt with, when, after an interval of some months, it became apparent that the cyst was refilling. In the course of a few weeks the contents, consisting of a thin purulent fluid, found an exit through the cicatrix left after the original tapping, with the consequent formation of a sinus, through which the ordinary offensive fluid, continually issued. Thus was established the exact

[3] Centralbl. f. Prakt. Augenheilk., Aug., Sept., 1888, p. 229. See The Ophthalmic Review, 1888, p. 355.

nuisance which the method originally adopted was designed to obviate. The difficulty of treating the cyst through the sinus was increased by the fact that during the lengthened absences of the patient, a portion of its now tortuous course passed through recently formed and still growing hypertrophic gland tissue. Under these circumstances I adopted the plan of passing a probe, previously dipped for three inches of its length into a saturated solution of chromic acid, through the sinus into the cyst cavity. This was done several times in three successive weeks, when, after an interval of non-attendance of some five weeks' duration, I was surprised to see a brown, tough material protruding from the wound. Traction on this drew out a rolled-up mass of the same substance, which when spread out had the appearance of leather, and was about the size of the palm of one's hand. It was undoubtedly the wall of the cyst, altered and probably destroyed by contact with the chromic acid, and thereafter got rid of as described. This unique specimen, preserved in spirit, is now in my possession. Needless to state that after this deliverance the cystic part of the trouble was ended. The enlarged isthmus and right lobe of the thyroid body required a period of further treatment, but ultimately recovered. It should be understood that no such extrusion of a well-formed cyst wall occurred in any subsequent case treated on the basis furnished by that just recorded—a divergence due no doubt to the improvement in the method of using chromic acid adopted as the outcome of this first crude experiment. In fact, the original cyst wall in the foregoing case had been converted into a pyogenic membrane by the early treatment, and this, being deprived of its vitality by the action of chromic acid, was at a later period cast off by the adjacent healthy tissues.

Shortly after the conclusion of the preceding case—that is, in October, 1884,—a very similar one as regards situation and size occurred in the person of a younger woman aged thirty. I had not at this time realised sufficient confidence in the use of chromic acid, so proceeded, as in the former instance, to tap and inject solutions of tannin. The purulent contents were evacuated on the fourth day. No attempt at adhesion or even of diminution of the cavity followed; the cyst was simply changed into an abscess, which discharged through the trocar wound. As no sign of improvement was apparent after three weeks, a cannula (without the trocar) was reintroduced, and the cavity carefully emptied of its contents. Instead of the probe dipped in acid and passed through a sinus, it was now practicable to introduce it through the cannula. This was done by means of the "acid carrier," an instrument which holds a definite quantity of the fluid at its distal end, and enables the operator to apply the acid directly to the boundaries of the cavity. This being done, the patient was directed to keep her bed, and to apply ice if any trouble followed. Nothing, however, occurred, and at the end of a week adhesion was complete. There has been no return of the cyst since.

In the third case, also a female, there existed fibro-cystic enlargement of the left lobe. Supported by the foregoing experiences, it was resolved to treat this case solely with the chromic acid. The cyst was tapped with the trocar and cannula, and when empty, without withdrawing the latter, the "carrier" charged with chromic acid was introduced through it, and applied directly to the cyst wall. On the fourth day, the wound being still open, although the tumour was shrinking satisfactorily, it was deemed desirable to introduce more acid, which was done without the intervention of the cannula. This was probably an unnecessary precaution, as the cyst disappeared from this time, and the wound healed rapidly.

The next case came under treatment in the early part of 1889. The patient was a male aged thirty. Inasmuch as a second cyst appeared at a widely distant part of the goitre from that first treated, it may be regarded as furnishing two examples of this method of dealing with cysts. The right lobe was dense and fibrous, whilst a small but prominent cyst occupied the middle line, and was clearly connected with the isthmus of the thyroid body. It was tapped, when about six drachms of clear straw-coloured fluid escaped. The acid was then applied exactly as in the preceding case. The wound was closed, and the patient kept in bed for three days by way of precaution. There was absolutely no symptom, and at the end of a week no trace of the cyst could be detected. After an interval of a month the patient returned for treatment of the hypertrophied right lobe, when a second cyst was observed on the outer border of the tumour, just above the clavicle. Although fluctuation was distinct the amount of fluid was small, and the swelling formed by it was rather broad than prominent. It was, however, tapped, when two drachms of fluid escaped, and was followed by rather free bleeding. On cessation of the latter the acid was introduced as before. The wound healed at once, but the cavity refilled very rapidly, owing, as it seemed, to the acid having been neutralised by the blood remaining in the cavity before reaching its boundaries. The operation was repeated after a few weeks, with the result of securing an equally rapid obliteration of the second cyst, as was witnessed in that connected with the isthmus. So complete was the disappearance of this cyst that its former site was selected on account of its accessibility—outside the edge of the clavicular portion of the sterno-mastoid muscle—for introducing the needle of the hypodermic syringe in the later treatment of the fibrous portion of the disease by means of injections of tincture of iodine. The negative results of the first operation due to the presence of blood in the cavity needs only to be recalled to suggest its proper lesson.

Some twelve months previously to the attendance of the last related case, in 1888 a young butcher, aged twenty, presented himself at the out-patient clinic of the London Throat Hospital for the treatment of a large ranula. This occupied the right side of the floor of the mouth, nearly filling that cavity, and further projected below the jaw on this side, as a large elastic swelling the size of a hen's egg. The case had been already under treatment in a provincial hospital, where on two occasions portions of mucous membrane had been excised with the usual unsatisfactory experience. No sooner did the wound heal than the swelling returned. Under these circumstances the remarkable efficacy of chromic acid in bringing about the abortion of those cysts to which I had hitherto applied it naturally occurred to me, and it appeared justifiable to adopt a similar course in the present instance. Accordingly a small incision was made in the most prominent portion of the tumour in the mouth, and through it the thick gelatinous contents were carefully evacuated. There was no bleeding. Explored with a blunt probe, the cavity was found to extend under the tongue almost to the opposite jaw. The wound gaped freely, and allowed the carrier charged with solution of chromic acid to be applied to its inner surface. Probably not more than five drops of the solution were thus introduced. The patient was put to bed—a precaution which again proved unnecessary, as no sign of irritation, either local or general, followed. At the end of a week there was no trace of swelling or enlargement of any kind. It was possible, however, to introduce a probe, with some persuasion, for a short distance into the wound; all beyond this point was firmly adherent. Although probably a superfluous proceeding, it was deemed expedient to reapply the acid to this sinus, after which it rapidly healed over, every trace of the disease having disappeared in less than a fortnight from the commencement of the treatment. Some two or three weeks later the patient returned for inspection. He was then quite well, and has since remained so.

Whether the treatment of ranula by chromic acid has been adopted by others either before or since the occurrence of the case just quoted, is unknown to me, but if, as I have reason to believe, this plan should prove to be a new departure, I am aware of the fact that one successful example is insufficient evidence on which to recommend any new method of treatment. Certainly, this instance is not introduced here with any such intent, but rather with the hope that it may convey a serviceable suggestion to some member of the profession whose experience of the disease, when treated on the ordinary lines, may have proved unsatisfactory and disappointing.

Regarding the precise action of chromic acid on the walls of cysts, or indeed, on living organised tissues generally, it does not appear that any very exact evidence exists. Repeated observation points to the complete and rapid amalgamation between the tissues and the acid itself, to such an extent that thereafter neither the one nor the other retains its former physical characters. This is especially the case with the acid, and constitutes its chief recommendation for the uses to which it is usually put, and which uses appear to be by no means exhausted. Should my experience in the direction indicated in this paper meet with corroboration, it does not seem improbable that the ingenuity of surgeons working in a wider field than mine may find in it a useful substitute for more heroic methods, when the object sought is to bring about the obliteration of cavities, the chief obstacle to which is the secretory proclivities of their limiting walls.

Harley-street, W.

STRANGULATED FEMORAL HERNIA AFTER PARTURITION; OPERATION; RECOVERY.[1]

BY CAMERON KIDD, F.R.C.S.ENG., M.B.LOND.

MRS. L——, farmer's wife, aged forty-one. Has had ten children, the last confinement four years ago. Her father has an enormous scrotal hernia, otherwise family history good. Has been a healthy woman, but eight years ago she accidentally found a small femoral hernia on the right side; it was easily reducible, and came down only about once or at most twice in a year. She never paid much attention to it. The last time it was down was eighteen months ago. On Monday, Feb. 23th, I was sent for late in the evening to see her, the message being that she was flooding several days after labour. She gave the following history: She had been confined naturally on Tuesday, Feb. 18th, but had lost a good deal of blood every day since on account of a severe cough. The bowels acted on Saturday and again on Sunday. On Monday, the sixth day after labour, she had intended getting up in the afternoon, but got out of bed at middle day to go to stool. Immediately on beginning to strain she experienced acute pain in the abdomen and vomited; there was no action of the bowels, and she was with difficulty put back to bed. All through the afternoon the pain and vomiting continued, and at the same time she was losing a large quantity of blood from the uterus. On examination I found her pale and collapsed. Pulse very feeble and over 100. She complained of intense abdominal pain, and was retching every few minutes; her night clothes were saturated with blood, which came away each time that she vomited. At first her symptoms were puzzling, for no mention was made of the hernia, as she did not connect her symptoms with it, and it was not until a further examination was made that the true cause appeared. The tumour occupied the usual position of a right femoral hernia, was tense and painful, and quite irreducible. She then stated that it had come down when she was straining at stool that day. An attempt at taxis failing, I decided to give a dose of opium and ergot and leave her for the night. At 3 A.M. a message was sent, to the effect that she was vomiting every two or three minutes, and still flooding, and that her friends wished something done. A little morphia was administered, and as soon as there was a good light on the morning of Tuesday, the 25th, the seventh day after labour and nineteen hours from the occurrence of strangulation, I proceeded to perform herniotomy, the woman being evidently in a sinking condition, and the symptoms, although of short standing, very acute. The vomit had not become stercoraceous. Chloroform was administered by my partner, Dr. Richard Wood. Full antiseptic precautions were adopted, carbolic acid being the agent used. The operation presented no unusual feature. The sac was thin and full of omentum, with a small quantity of reddish fluid. The omentum was ligatured in three divisions and removed, the piece being about the size of three fingers; a small knuckle of strangulated bowel then came into view, purple and shining. Incision of the ring was necessary. After reduction, the sac was easily stripped from the surrounding tissues, the neck ligatured with carbolised silk, and the sac removed. There was no hæmorrhage at any stage. The wound was closed with deep and superficial silk sutures, the lower angle being left open. Carbolic gauze dressing was used. The operation occupied twenty-five minutes. She rallied well, the vomiting at once ceased, and flatus was passed within four hours. There was no rise of temperature, and she improved uninterruptedly. A bad attack of hæmorrhoids rendered the bowels obstinate; they were moved by enema on the fourth day, and again on the seventh, after which they acted naturally. On the seventh day the only rise of temperature took place, up to 101°, and a mass of clot was passed from the uterus. The wound healed in three-fourths of its extent by first intention, but subsequently one of the buried silk sutures suppurated out from the lower angle, delaying the final union. The lochial discharge was profuse and bloody until the seventh day, when the clots were discharged, after which date it rapidly lessened. She suckled her infant from the day after the operation. She was allowed up on March 9th, and on the 17th went away for change of air, with the wound soundly healed.

I have been able to find only one recorded case similar to the above, this being a case of strangulated umbilical hernia successfully operated on during the puerperium by Mr. Bracey in 1882, the notes of the case being read before this Society. No similar occurrence is recorded in the reports of the Rotunda Hospital, Dublin, embracing over 30,000 deliveries. Although pregnancy and child-bearing are well known predisposing causes to the occurrence of hernia, it seems to be rare for strangulation to complicate the puerperal period itself. One reason for this appears to be that although the inguinal and femoral apertures are undoubtedly stretched and weakened during pregnancy, the full uterus keeps the intestines pushed up from the abdominal wall; the same cause acts during the straining of parturition, then, afterwards, the woman is usually quiet and recumbent until the tone of the abdominal walls is somewhat restored. In both Mr. Bracey's case and mine it will be noted that bronchitis with violent coughing was associated with pregnancy and parturition.

Bromsgrove.

[1] A paper read before the Midland Medical Society, March 26th, 1890

TRAUMATIC SUBCLAVIAN ANEURYSM; LIGATURE OF INNOMINATE AND CAROTID ARTERIES; DEATH.

BY GEO. E. TWYNAM, M.R.C.S., L.R.C.P.,
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THIS case is one of great interest to the profession at large, not only on account of its rarity, but as an instance of a woman operated on in the manner proposed by Mr. W. G. Spencer in the *British Medical Journal* July 13th, 1889. It so happened that his paper reached Australia a few days before the girl's admission into hospital; and, after considering the methods of operating open to one, I determined to act on his suggestion. For the notes of the case up to the time of the patient's admission into the Prince Alfred Hospital I am indebted to Dr. Heeley of Young.

E. P——, aged eighteen years, a well-developed, healthy girl, when out riding on July 21st, 1889, was thrown violently from her horse against a stump. She was picked up insensible and taken home. A medical man who was called in diagnosed a fracture of the right clavicle, with considerable contusion of the shoulder. It appears the boggy swelling was not discovered for five days afterwards, and then, the friends not being satisfied, Dr. Heeley was called in. He diagnosed the condition, and told the friends there was an aneurysm, probably produced by a sharp point of bone entering the artery. There was great pain constantly over the seat of injury. When first seen, the swelling was about the size of half a walnut, just over the artery. Pressure was tried for a few days and the swelling slightly decreased, but the pain became unbearable, and when the pressure was removed the swelling gradually recurred. The friends were anxious that Dr. Heeley should operate, but he declined to do so in the country for want of proper assistance. Accordingly, the girl was sent on to Sydney, and was admitted into the hospital on Aug. 19th, her condition then being as follows:—She lay in bed with the head raised and bent forward, complaining of great pain in the right shoulder; and this extended down the inner side of the arm to the elbow. On examination, a fracture of the right clavicle was found, with a large pulsating swelling in the neck on the same side. The point of fracture was situated at the junction of the outer and middle thirds of the clavicle. From the sterno-clavicular articulation to the tip of the inner fragment the measurement was 3½ in. The swelling extended from the articulation as far outwards as this point, and partly overlapped the inner fragment. It then followed the curve of the outer fragment until it reached a point 1½ in. from the tip of the acromion. From there it passed backwards under the trapezius, at a finger's breadth from the spine of the scapula. Upwards, the highest point reached was at the level of the fourth cervical vertebra, at a point half way between the spine and the trachea. Inwards the tumour reached sufficiently far to press on the carotid vessels. In the facial and temporal arteries on that side pulsation was first perceptible, being

felt better in the former than the latter. The thyroid body was not to be felt distinct from the swelling, whilst the trachea was pushed towards the left. From the most defined point of the edge of the swelling behind, across the tumour, to the sterno-clavicular articulation in front, the measurement was 6 in., and from the furthest point outwards to the same articulation 5 in. The pupils were medium in size, equal, and reacted to light. At the apex of the right lung a few fine crepitant râles with blowing expiration were heard. Heart sounds normal. There was a distinct expansile pulsation over the swelling with well-marked bruit. Pulse 96 on both sides, though that on the right was much the feebler. There was no œdema or undue discolouration of the arm. Temperature 99·4°; respiration 24.

After consultation, it was decided to try dieting, with large doses of iodide of potassium and morphia (a quarter of a grain) every four hours, to relieve pain, if required. She was in considerable pain all day on Aug. 20th. By midday on the 21st the tumour had perceptibly increased, and the skin over it was becoming inflamed. Accordingly, after a second consultation, operation was decided on—i.e., thirty-one days from the accident. On Aug. 22nd, the patient being under chloroform, which she took well, I operated by Mr. Spencer's method. I had some trouble in finding the division between the hyoids, owing to those muscles being drawn aside by the tumour; but by carrying the lower cross incision outwards the parts could be pulled aside and the division found. No veins of any consequence were met with. I reached a large vessel on the side of the trachea low down in the neck without difficulty, and then working from above the patient's left shoulder, after much difficulty, in consequence of not having a laterally curved aneurysm needle, I passed the silk ligature prepared as directed, but did not knot it. Thinking, from the situation of the vessel, I had reached the carotid close to the bifurcation, I followed the vessel down behind the articulation sufficiently far to see the left innominate vein. In doing this I had to ligature and divide a good-sized vessel which passed forwards. Not finding the bifurcation, I went higher up in the neck, and found that my ligature had been placed on the innominate, which was stretched and pulled up by the tumour, and that the bifurcation, was about three-quarters of an inch higher. The carotid then was easily reached, ligatured an inch above the bifurcation, and finally the ligature on the innominate knotted off, and the ends of the ligatures cut short. The parts were thoroughly cleansed with perchloride, dried, and dusted with boracic acid. The edges of the hyoid muscles were brought together by catgut sutures and the skin closed with horsehair sutures. No drain of any kind was put in. Pulsation ceased in the tumour for about an hour, and then returned slightly, and consolidation could be felt to be taking place that same night. The right arm was wrapped in cotton wool and laid on warm bottles, and remained warm to the last. Faint pulsation was felt that evening in the radial. A quarter of a grain of morphia was given at 5 P.M. and at 11.30 P.M., as she complained of considerable pain. She dozed during the night, and at 6.30 A.M. the tumour had consolidated, and she said she felt very well, except that the pain in the arm was severe. Another quarter of a grain of morphia was given then, and up to 9 A.M. on the 23rd she progressed most favourably. At 9.45 A.M. I received a message to say a great change had occurred, and that she had rapidly become unconscious. I went to the hospital immediately, and found her comatose with left facial paralysis, and the right side of the chest totally paralysed. She died a few minutes after my arrival, eighteen hours after the operation.

It was impossible to obtain a complete post-mortem, but we were allowed to examine the wound. The superficial parts were united by lymph, the hyoid muscles requiring a slight push to separate them. In the depth of the wound behind the sternum there was not more than a teaspoonful of thick serum. Both ligatures were buried in lymph, only part of the knots showing up. The clavicle with the tumour and surrounding parts were removed for further examination. The sac when opened contained a large teacupful of coagulated blood, the outer layer of which was partially decolourised. Dr. J. T. Wilson, pathologist to the hospital, kindly dissected the specimen for me, and his report is as follows: "The sac communicates with the first part of the subclavian artery by a smooth, rounded aperture, one-eighth to one-sixth of an inch in diameter, situated in the anterior wall of the artery. This opening is placed about one-sixth of an inch external—i.e., distal—to the origin of the thyroid axis artery, which, however, seems to be represented mainly by its inferior thyroid branch. The opening is about the same distance external to the large vertebral artery from the upper and back part of the subclavian, and about an equal distance internal—i.e., proximal—to the origin of the superior intercostal artery from the back wall of the subclavian. About half an inch external to the superior intercostal there arises from the upper part of the artery an aberrant branch, which is either a supra-scapular or a superficialis cervicis artery, and is diverted somewhat outwards. Again, from the third part of the subclavian, at a distance of about two inches from the opening into the sac, there arise two branches, one small and another large, which latter is evidently the posterior scapular branch often arising in this position. Every one of these branches was quite patent, with the exception of the branch corresponding to the thyroid axis, and giving rise to the inferior thyroid and possibly to the supra-scapular arteries. Thus we can easily understand the maintenance of the circulation in the arm. Indeed, there could be but very little interference with the collateral circulation. As to the condition of the great vessels themselves, I found, distal to the ligature of the innominate, a very slender blood-clot occupying only a small extent of the lumen, and extending only into the orifice of the thyroid axis artery. The ligature was quite intact, and had completely obliterated the lumen, having ruptured the inner coat completely. The walls of vessel were so finely adherent by lymphy adhesion that they were not easily separated, even when the ligature was cut through. There was no distal plug of blood-clot, and the adherent area of the inner wall was simply annular at the seat of ligature. This description applies equally to the condition of the common carotid, whose inner wall had also been beautifully cut through by the constricting ligature. I dissected very carefully in hopes of tracing the phrenic nerve, but it must have been involved in the greatly condensed and thickened fibrous tissue forming the aneurysmal sac, and I did not succeed in finding it." There was no clot on the proximal side of the innominate ligature. I much regret not being able to obtain an examination of the brain to see whether there were venous thrombosis. She was so far gone on my arrival at the hospital that I could not decide positively whether the right leg was paralysed; certainly she did not move it on stimulation, although she did move the left. The puffing out of the left cheek in respiration was clear, as was also the fixity of the right side of the chest, whilst the left was working during the few minutes I could observe her. Some idea of the force with which she fell may be gathered by the position of the wound in the first part of the artery, although the fracture was so far out. An attempt was made to localise the position of the wound before operation by the intensity of the bruit on auscultation, but without result, and I am thankful, now I know the abnormal manner in which the branches came off, I did not attempt to open the sac, as at one time proposed.

I think the artery being drawn up certainly simplified the operation in this case, though the site of ligature was behind the sterno-clavicular articulation. The median incision enabled me to reach the innominate with but little difficulty, but aneurysm needles curved to right and left are most important. I could not obtain any on so short notice, and had a good deal of trouble in passing the ligature in consequence. Apoplectic symptoms have been noted as occurring more than once in connexion with this operation. Mr. Erichsen notes one (15. O'Grady), whilst Mr. Spencer mentions cerebral embolism in the case of Professor Durante. Out of twenty-two accepted cases which I have collated from Mr. Erichsen's Surgery and Mr. Spencer's list, and including Mr. Lewtas' case and my own, cerebral symptoms have occurred in three. I find cerebral apoplexy is also recorded once (Mr. Knowles' case) in the distal ligature of the subclavian and carotid arteries for aortic or innominate aneurysm (Holmes's Surgery). It was a most unfortunate termination, for she was a young woman in whom it is most unlikely the cerebral vessels could have given way, whilst the abnormal distribution of the arteries would almost certainly have ensured the vitality of the limb. The possibility of thrombosis was raised before the operation in consequence of the vertebral supply being cut off as well as that by the carotid, but I have no doubt that the pressure on the phrenic assisted materially in the fatal result.

Sydney

A CASE OF

ACUTE INTESTINAL OBSTRUCTION COMPLICATED WITH PERFORATING ULCER OF THE DUODENUM; DEATH IN TWENTY-FOUR HOURS FROM COMMENCEMENT OF SYMPTOMS; NECROPSY.

BY ED. A. PIGGOTT, L.R.C.P. & S.ED., L.S.A. LOND.

THE history of this case, which, owing to its rare occurrence so far as the perforating ulcer is concerned, may prove interesting, is as follows:—

The patient, Charles C——, a shoemaker by trade, also acting as town postman, aged twenty-eight, of very active habits, had been under my care periodically for about five or six years always complaining more or less of acute pain in the region of the epigastrium, not sufficient to invalid him. Latterly the attacks have been much more frequent, and have always assumed the character of gastric catarrh. The pain was always relieved by a simple alkaline mixture or soda-mint tabloids. On the evening of Sunday, April 27th, I was sent for to see him, when I found him in bed suffering most acute abdominal pain. He had travelled some miles in the morning of the same day upon his bicycle, and upon his return home to dinner his wife remarked that he looked "done up." He, however, was able to eat his dinner as usual, and attended church in the evening, after which he had a short walk. It may be as well to state that he had a fall from his bicycle on the previous night (Saturday), and, in fact, it is stated that he had met with several falls of late from his bicycle, but did not complain of anything more than a shaking. The acute attack commenced by his feeling, quite suddenly whilst eating his supper, a sharp, lancinating pain over the epigastrium, an inch or so beneath the ensiform cartilage; he at once desisted from any more food and went to bed. It was at this period that I saw him first. The abdominal pain was accompanied by persistent vomiting, with severe pain between the shoulders. Pulse 100 and weak. Bowels not relieved since the morning of the previous day, which irregularity was unusual for him. I prescribed an anti-spasmodic mixture and ordered hot fomentations to be constantly applied to the abdomen.

On April 28th I visited the patient at 7 A.M., when I found an aggravation of all the symptoms except the vomiting, which had abated for some hours. Pulse 120, very weak; urine scanty, abdomen tympanitic; knees drawn up in the bed, and the countenance assuming that anxious expression so well known in cases of abdominal mischief. An ounce of castor oil with ten minims of tincture of opium was prescribed; also milk and soda-water, with an occasional two drachm dose of brandy, either in milk or soda-water, to combat the extreme collapse. Hot fomentations to be continued to the abdomen, with hot bottles to the feet. At 10 A.M. there was no abatement of the acute abdominal pain. Mouth very much parched, and patient suffering extreme thirst. No relief from bowels. Two-thirds of a grain of extract of opium was now prescribed in the form of pill, to be taken every four or six hours according to the urgency of the symptoms. At 1 P.M. an enema containing castor oil, tincture of assafœtida, and turpentine was now thrown well up the rectum, with instructions for it to be retained as long as possible. At 4 P.M. the bowels were fairly well relieved. Urine scanty and high coloured. There was now a slight abatement in the severity of the pain both in the abdomen and between the shoulders, but the symptoms of collapse and shock were as severe as ever. Pulse very quick and thread-like. Heart's action irregular. At 8.30 P.M. the patient had a return of the acute abdominal pain, the bowels had also acted slightly, the matter passed consisting of nothing more than a small quantity of mucus. The radial pulse was now quite imperceptible, face and chest bathed in a cold clammy perspiration, collapse being most complete; patient perfectly conscious of all going on around; intense thirst, relieved by milk and soda-water in small quantities. At 9 P.M. I left the patient for the night, with instructions that I should be called if occasion required. At 9.45 P.M. I received an urgent message to attend. Upon my arrival I found the patient dead. He had asked for a small quantity of milk-and-brandy only a few minutes previously, as he felt faint, after which he fell back in the bed and expired, without any evidence of suffering.

Necropsy, conducted twenty-one hours and a half after death.—Face bore a placid expression. A good deal of post-mortem discolouration upon the face, upper extremities, chest, &c. Rigor mortis very well marked. Upon opening the cavity of the thorax, a considerable quantity of serous fluid escaped from the anterior mediastinum. The heart was perfectly healthy, as also the great bloodvessels proceeding from it. The left ventricle was perfectly contracted and quite empty, the right ventricle contained a small quantity of frothy, venous blood; both auricles were empty. The lungs presented no evidence of organic disease, but were slightly congested. Upon opening the cavity of the abdomen there was an escape of a considerable quantity of fetid gas, also a large amount of deep amber-coloured serous fluid. The stomach was dilated and contained a quantity of fetid gas, together with a quantity of grumous-looking fluid mixed with bile. Its mucous coat was more or less congested in patches, with a certain amount of thickening; there was no sign of ulceration or perforation of this organ. At some two and a half inches distance from the pyloric orifice of the stomach, on the anterior surface of the duodenum, there was a distinct perforation of the bowel, about the size of a small kidney bean, oval in shape, with smooth edges, the contents of the bowel being found effused into the peritoneal cavity in the immediate neighbourhood, the peritoneum in the vicinity of the perforation bearing distinct evidence of inflammatory action. Upon tracing the bowel downwards to about the centre of the small intestine (jejunum), a complete obstruction was found, the bowel being twisted, so to speak, upon itself, and held in its abnormal position by a mesenteric band. The bowel was of a dark-claret colour, and there was evidence of commencing gangrene, the whole intestine from this region downwards being intensely congested and discoloured, the vessels showing up of a bright-red tint. The liver was slightly congested, and of a somewhat darker colour than natural. The other abdominal organs showed no sign of organic disease.

Remarks.—The diagnosis in this case when I was first called in upon the Sunday evening was somewhat obscure; but on the following morning I felt convinced that there was intestinal obstruction, notwithstanding the fact that the vomiting had never assumed a stercoraceous character, and subsided entirely about eight hours from the commencement of the symptoms. The temperature was never to any appreciable extent above the normal. The extreme collapse and shock, terminating so rapidly in death, could only be accounted for by the perforation of the bowel.

Clare, Suffolk.

SPASMODIC TORTICOLLIS TREATED BY NERVE LIGATURE;

COMPLETE AND PERMANENT RECOVERY.

BY MAYO COLLIER, M.S. LOND., F.R.C.S. ENG.,
SENIOR ASSISTANT SURGEON, NORTH-WEST LONDON HOSPITAL, ETC.

As there are few cases on record where surgical interference has resulted in more than temporary benefit in spasmodic wryneck, I hasten to publish the following case in the hope that the same treatment may be the means of bringing relief to other sufferers. Nothing is known worth repeating of the pathology of this affection, consequently up to the present the treatment has been entirely empirical. Drugs of various sorts have occasionally done good, and nerve-stretching and resection have been resorted to in most cases with but temporary benefit. In dealing with the following case it occurred to me, looking at the facts of the case—namely, an excessive intermittent and irregular discharge of energy along the spinal accessory nerve—that by the introduction of increased resistance in the course of the nerve, and possible deflection of some of this energy into structures other than the sterno-mastoid and trapezius muscles, an abatement or cure of the trouble might result.

A. W——, a fairly healthy-looking girl aged twenty-one, daughter of fruit growers in Kent, was brought to me in January, 1889, by Dr. Sutton of Sittingbourne. She was

a well-developed, intelligent girl, with a family and personal history remarkably free from any neurotic or other complaints. Her affection dated from 1883. It had gradually supervened, and culminated in a most distressing state of things, the head being so extremely rotated as to bring the left ear with sudden jerks into a line with the sternum. This took place every few seconds, not altogether ceasing, although less violent during sleep. With regard to treatment, she had been dosed with drugs innumerable, galvanised, blistered, her tonsils removed, and the galvano-cautery applied to the back of the throat, without beneficial results. I sent the case to St. Thomas's Home, and there, with Drs. Edmunds and Sutton's valuable assistance, had little difficulty in finding the spinal accessory nerve emerging from the outer border of the sterno-mastoid muscle. Taking the nerve as a guide, I tunnelled through the muscle for some distance, using a moderate amount of traction on the nerve, but avoiding injury as far as possible to the muscle. This done I placed a loop of silver wire round the nerve as high as I could reach, just twisting the ends to ensure slight compression. The wound was treated in the usual way, the ends of the loop protruding. On recovering from the chloroform the spasms had entirely ceased. The wound subsequently healed by first intention, without pain or discomfort in any way. After a fortnight the patient returned to her home in Kent. At the end of three months she visited me, still without the smallest return of the spasms, and much improved in health. Nothing seemed amiss with the sterno-mastoid or trapezius; she could rotate her head, and retain it in any position. I cut off the ends of the loop as close as possible, so as to allow the skin to grow over them. I have not seen the patient since, but learn from time to time from Dr. Sutton that she remains perfectly free from a return of her troubles. I append a letter lately received, indicating her present condition.

"Chesley, Newington, April 5th, 1890.

"Dear Mr. Collier,—I thought you might like to know how I am progressing. Am pleased to say I am feeling quite well, and have just returned from Cranbrook, where I have been on a visit for the last three weeks. I have also been to several dances this winter. So you see I am much stronger, and can keep upright.

"Believe me, yours sincerely,

"Mr. Collier." "A—— W——.

New Cavendish-street, W.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. THOMAS'S HOSPITAL.

INVERSION OF THE UTERUS, DUE TO A LARGE POLYPUS; SUPERFICIAL NECROSIS OF BOTH UTERUS AND TUMOUR; SUDDEN EXTRUSION OF THE ENTIRE MASS THROUGH THE VULVA; REMOVAL OF TUMOUR, WITH SUBSEQUENT REDUCTION OF THE INVERSION; REMARKS.

(Under the care of Dr. CULLINGWORTH.)

THIS is an excellent example of the reduction of old-standing inversion of the uterus by the elastic repositor, after the removal of a fibroid tumour on which the inversion depended. The account is given at some length because of the unusual character of the case. For references to the literature on the subject we refer our readers to the remarks appended to it.

A married woman, aged forty-five, was admitted to St. Thomas's Hospital on April 9th, 1890. She was extremely blanched and in a state of collapse, the pulse at the wrist being scarcely perceptible. Protruding from the vulva was a large solid mass, ulcerated and suppurating over its whole surface, and giving off a highly offensive odour. The tumour, vulva, and inner parts of the thighs, as well as the clothing, were covered with discharge mixed with blood. The account was that sixteen months previously she was told she had cancer of the womb, that she had had a foul discharge ever since, and that three days ago, whilst walking in the street with a child in her arms, she was suddenly seized with severe pain low down in the abdomen, felt something force its way out of her body, found herself drenched with blood, became faint and giddy, and had to be taken home in a cab. For some months she had been aware that there was a lump, for she had been able both to feel it and see it; but until this occasion it had never become completely extruded. A doctor endeavoured to replace the procident mass, but without success. During the three days that had since elapsed there had been continuous loss of blood. The resident officer on duty (Mr. Low), after washing the extruded mass with a solution of mercuric perchloride, returned it within the vulva, and subsequently admitted her.

On admission, her temperature was subnormal, 96°; her pulse 136, very small and feeble. Next day she had rallied somewhat, and the following additional particulars of her history were obtained. The catamenia commenced at the age of twelve; the patient had married at twenty, and had borne five children, of whom the eldest was twenty-five years of age, the youngest nineteen. She had had no miscarriages. Her present illness began three years ago, with irregular and profuse hæmorrhage. She became weak and pale after the attacks, and frequently suffered from pain around the loins and down the legs. About eighteen months ago there commenced to be a continuous watery, fetid, blood-stained discharge. About the same time the patient began to suffer from pains, like labour pains, and a constant sensation as of "something wanting to come away." She was examined by her own doctor, who told her there was something hard in the womb that ought not to be there. Shortly before Christmas, 1888, she applied for admission at a hospital for women. The doctor who examined her said that she was suffering from cancer. She was taken to the Middlesex Hospital, but left of her own accord in three days, before any examination had been made.

Dr. Cullingworth saw and examined the patient on the day following her admission. Finding the mass in the vagina smooth, comparatively soft, and lobulated, he placed her in the dorsal position on the operating table, and, seizing the tumour with two volsellæ, drew it outside the vulva for inspection. It presented the appearance of an oblong tumour, the surface of which was ulcerated and covered with an extremely fetid purulent discharge. At its base of attachment it seemed to be continuous all round with the walls of the vagina, without any intervening groove or sulcus. The upper portion of the mass was somewhat softer, and of a more livid hue than the lower, the division between the two being marked by an ill-defined and very shallow groove which ran all around the mass, at about the middle of its length. A nodule of firm consistence projected from the lower end of the mass on its left side. This nodule had a diameter of five-eighths of an inch. The diagnosis was: Complete inversion of the uterus, with a fibroid polypus attached by a broad base to its fundus, the exposed surface of both uterus and tumour being in a state of superficial necrosis. On bimanual examination, with one finger in the rectum, the body of the uterus was found to be absent from its normal situation. A sound introduced into the bladder could be felt distinctly by the finger in the rectum immediately above the vaginal roof. Passing from the vaginal roof upwards and outwards on each side was a thick tense band, evidently consisting of the broad ligament put greatly on the stretch. The roof of the vagina was not depressed. By means of a scalpel a transverse incision was there and then made across the tumour, about half an inch below the shallow groove already mentioned, and, as the interior was found not to be very vascular, the incision was carried completely through it, and the greater part of it thus removed. The outer covering of the remaining half-inch of the growth was now peeled up, and the base enucleated from the fundus uteri by means of the fingers. At its centre a band of tissue less than half an inch in diameter passed from the growth directly into the fundus; this stalk was divided with scissors, and the capsule which had been peeled off from the base of a tumour was also cut away. The inverted uterus was now left free from the growth. To check the oozing from the raw surface four silk sutures were passed beneath it and tied, so as to fold it upon itself. This at once stopped the bleeding. The vagina was then douched with a weak solution of corrosive sublimate. The uterus, still inverted, was replaced within

the vagina, an iodoform tampon placed against the sutured wound, and the patient sent back to bed. The mass removed had, on section, the usual appearance of a fibroid tumour of the uterus. Its length was four inches, its circumference at the broadest part eight inches, and the diameter of its base two inches and a half. The necrotic process had not extended into the interior of the growth. In the evening of the following day the patient's temperature rose to 103°; and, on making a vaginal examination, Mr. Boycott, the resident accoucheur, found the fundus uteri tense, swollen, and tender, the stitches being quite concealed from view by the swelling. He thereupon removed one of the stitches, with the result of setting free a quantity of serum and affording great relief to the tension. The temperature, however, remained high, frequent shiverings occurred, and though there was little or no pain, the patient's tongue became dry and she looked very weak and ill.

On the fourth day after the operation, April 13th, the remaining sutures were removed. No bleeding took place from the raw surface, which was now exposed. Thinking it doubtful whether the uterus would assume a healthy condition so long as its circulation was impeded by its abnormal position, Dr. Cullingworth determined to attempt its reduction. With this object continuous elastic pressure was applied by means of Aveling's repositor, iodoform gauze being packed around the uterus, and between the raw surface of the fundus and the cup of the instrument. The following morning the temperature had become reduced to 100·4°. The patient had not slept much, but did not complain of much pain. At 10 A.M. the repositor was readjusted with fresh packing, and again at 4 P.M., this time without packing. On the 15th there was a good deal of bloodstained discharge, and some clots were passed. The patient also complained of pain. The repositor, which had slipped a little, was now removed, having been in position for forty-eight hours. Dr. Cullingworth now determined to wait before again attempting to reduce the inversion, in order to ascertain whether, by rest and frequent douching, the condition of the uterus would not improve. The result was extremely satisfactory. The foul discharge, at first profuse, gradually diminished and ultimately ceased; the uterus became less swollen, its mucous membrane gradually assumed a healthy aspect, and the wound on the fundus healed. At the end of April a shallow sulcus could be felt around the neck of the uterus.

On May 13th, twenty-eight days after the removal of the repositor, the instrument was again applied, the uterus being packed round with iodoform gauze. It was readjusted the following day without any packing, and, after being kept on for five days, was removed, the patient beginning to feel discomfort from the loaded state of the bowels. The condition after the removal of the instrument was as follows. The vaginal mucous membrane was somewhat soft, swollen, and tender. The body of the uterus still projected into the vagina, but was high up, and around the upper part of the inverted organ there could be felt a deep, narrow sulcus, in parts an inch in depth, in other parts an inch and a half. The outer wall of the sulcus consisted of a broad, tense band, completely encircling, and, as it were, grasping the uterus. The fundus projected an inch below the mouth of the sulcus; as the cup was removed, a few drops of thin yellowish serum escaped, quite free from offensive odour.

A week was now allowed to elapse, and on May 25th, the bowels having been well cleared, the repositor was reintroduced, without any packing, a smaller cup being used this time than on the two previous occasions. The uterus had descended a little lower than when the instrument was last removed, occupying now much the same position that it did five weeks earlier, after the first application. For the first thirty hours the patient suffered little or no pain; after that time she complained of a good deal of pressure, but at no time did she experience any sudden pain or shock. The instrument was removed at 3 P.M. on the 27th, when it had been in position for fifty hours. The removal was easily effected by tilting the cup on one side, passing a finger over its rim, and depressing it, whilst traction was made on the stem. The inversion had become completely reduced. The cervix was sufficiently dilated to admit two fingers. The length of the uterine canal was two inches and a half; the distance from the vulva to the os uteri, three inches and a half. The fundus was tender both externally (as ascertained by the hand during bimanual examination) and internally (as ascertained by the sound). It was impossible to fix the precise moment when the uterus went back, there having been no symptom to indicate it. Reduction had certainly not taken place at the end of the first twenty-four hours; after that no vaginal examination had been made. Little or no discharge followed the removal of the instrument, and next day the patient, though stiff from lying in one position, and somewhat weak, expressed herself as feeling perfectly well. In a day or two she was moving about the ward, and on June 7th she went home, free from discharge of any kind, with the uterus in its natural position and no longer even tender to the touch, and with her general health greatly improved and in a fair way for becoming completely restored.

Remarks by Dr. CULLINGWORTH.—Chronic inversion of the uterus is, under all circumstances, a rare displacement, and of the cases that do occur only a very small number is due to causes unconnected with parturition. The most frequent of such causes is intra-uterine polypus. For the most part, the polypi that produce this displacement during their expulsion from the uterine cavity are attached by a broad base—or, in other words, are sessile. The consequence of this is that the separation between the inverted uterus and the tumour attached to its fundus is often ill defined, and the whole mass presents the appearance of a single tumour. Hence it is by no means surprising that amputation of the inverted uterus has been performed several times under the mistaken impression that a large polypus was being removed. The difficulty of diagnosis is well illustrated in a case recently recorded by Dr. Horrocks, in which the tumour was at first thought to be a polypus, was afterwards made out to be an inverted uterus, and treated as such, and was finally discovered to be a combination of the two.[1] It was chiefly owing to my recollection of this case that I was led to suspect at once the true state of matters in mine, though the furrow marking the line of division was so slight as to be difficult to demonstrate to the bystanders, and the sloughing condition of the mucous membrane covering both the inverted uterus and the polypus introduced an additional element of confusion. With regard to the treatment adopted, it will be observed that the tumour was not at first removed in its entirety. In a case where this was attempted a portion of the fundus was inadvertently cut away with the tumour.[2] It seems preferable, therefore, if the knife be used or the écraseur (the days of which, so far as the removal of uterine tumours is concerned, are, I believe, numbered), to leave a portion of the growth to be removed separately by the slower but safer process of enucleation. The slight hæmorrhage that took place from the raw surface left after the tumour was separated was easily arrested by folding the surface inwards upon itself, and maintaining it in this position by a few temporary sutures. The question as to the best method of dealing with the inverted uterus was a more difficult one. Under ordinary circumstances, the accepted treatment of chronic inversion of the uterus, at any rate in this country and in America, is reduction by sustained elastic pressure, however long the displacement may have lasted. Amputation is now justly regarded as a last resource, only to be resorted to after repeated and prolonged efforts at gradual reposition have proved unavailing. Doubts have indeed been expressed whether amputation (which, curiously enough, seems to be still the recognised mode of treatment in Germany when taxis has failed) is ever really justified. That the more unpromising cases may with perseverance be rectified without mutilation is abundantly proved by the many instances of success to be found in the medical literature of England and America. Encouraged by the knowledge of what others had accomplished, I determined not to sacrifice the uterus in this case until I had satisfied myself that reposition was impossible. At the same time I could not but realise that the conditions were extremely unfavourable. The first attempt at replacement, as might have been anticipated, failed; but by allowing the uterus time to get into a healthy condition before reapplying the apparatus, complete success was eventually attained. The instances on record of non-puerperal inversion of the uterus successfully treated by sustained pressure are as yet few in number. The earliest, so far as I have been able to ascertain, was reported by Dr. Albert F. Field (now of Ramsgate),

[1] Trans. Obst. Soc., Lond., vol. xxx., 1888, p. 196.
[2] W. T. Lusk, Trans. Obst. Soc. of New York, vol. i., 1879, p. 461.

in the year 1872.[3] The case was under the care of Dr. Greenhalgh at St. Bartholomew's Hospital, the form of elastic pressure which he used being an air-bag. Another case is related, in a later volume of the same series of Reports, by Dr. Matthews Duncan,[4] who employed a straight cup-and-stem repositor, attached to a T-bandage by elastic straps. Dr. T. G. Thomas of New York effected reposition in a case that came under his care by means of a Byrne's repositor;[5] while Herman, in a case reported to the Obstetrical Society of London,[6] in which, unfortunately, the treatment was interrupted by the patient's death owing to progressive gangrene of the inverted uterus, employed the sigmoid repositor of Dr. Aveling. In fact, since Tyler Smith in this country, and Jas. P. White in America, first suggested and carried out the principle of treatment by sustained pressure, many different methods have been employed, each being in some respects an improvement on its predecessors. The instrument of Dr. Aveling is, in my opinion, the best and most efficient that has yet been devised.[7] Dr. C. C. Lee of New York has described two cases in which, after the tumour had been wholly or in part removed, sustained *solid* pressure was kept up for three or four weeks by astringent tampons introduced into the vagina and changed day by day, the result being in each instance successful.[8]

It is only fair to say that Dr. Lee himself does not appear to attribute the reduction to the pressure exercised by the tampons; he speaks of it as having occurred spontaneously. Whether this was so or not in the two instances in question, it seems certain that spontaneous reduction of an inverted uterus *may* take place. Several apparently well-authenticated examples of this fortunate occurrence are cited by Dr. R. Barnes,[9] and by Dr. R. P. Harris of Philadelphia.[10]

SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH.

ACUTE OVARITIS, FOLLOWED BY SUPPURATIVE PERITONITIS; DEATH; REMARKS.

(Under the care of Dr. CLAY.)

ACUTE OVARITIS running on to suppuration is fortunately not a disease which often presents itself for treatment in the wards of our hospitals, and our literature on the subject is not extensive. This case is an example, in which, after a chill, suppuration in the right ovary followed, and the patient died from acute peritonitis. The chief points in the clinical history are indicated in the remarks. For the following report we are indebted to Mr. W. Gifford Nash, house surgeon.

G. B——, aged twenty-three, unmarried, began to feel ill on Saturday, March 15th, and on the evening of the 16th her temperature was 102°. She complained of nausea and headache, but denied the presence of any other pain. She was given bismuth, sal volatile, and bromide of potassium, which gave great relief. On the 17th she insisted on getting up, as she felt quite well. During that night she felt cold and shivered. On Tuesday morning, March 18th, she got up, but, feeling sick, returned to bed. In the evening she said that she had felt sick all day, but had only vomited once; she had a headache, but no other pain. It was about the proper time for her period, but this had not appeared. She said that lately she had not been very regular. The pulse was 120; temperature 104·2°. Tongue furred. A systolic bruit was heard at the cardiac apex and pulmonary base. She passed a very bad night, was constantly sick, and her bowels acted three times. The vomit was bilious, and the motions loose and dark. On Wednesday, the 19th, at 10 A.M., her temperature was 101·6°; pulse 132. Her features were pinched and blanched, and eyes very much sunken; abdomen natural; spleen not enlarged; no spots. At 3 P.M. she complained of a shooting pain on the right side of the abdomen, and a distinct, tender, rounded swelling was felt in the right iliac region. The bowels had acted six times since 10 A.M. Ten minims of laudanum, with half an ounce of brandy, were ordered every four hours, and linseed poultices to the abdomen. At 9 P.M. the temperature was 104·4°. Five grains of quinine, with three ounces of beef-tea and ten minims of laudanum, were given as an enema, and repeated twice in the night.

On Thursday, March 20th, she was worse, having passed a bad night. Her tongue was red at the tip. Abdomen slightly distended, so that the swelling in the right iliac region could not be felt. Temperature 103°; pulse 132; urine was acid, sp. gr. 1025, and contained one-third of albumen. Under the microscope were seen hyaline and granular casts and epithelial cells. Half an ounce of brandy was ordered to be given every two hours, an ounce of milk with an equal quantity of hot water every hour, and a sixth of a grain morphia suppository every four hours, and a soft rectal tube to be passed occasionally.

In the afternoon the respirations were very slow, only four or five in a minute; pulse was 124. At 5.30 P.M. she refused brandy, so champagne was substituted. She vomited at 6.45 and 10.30 P.M. At 7 P.M. the abdomen was smeared with equal parts of belladonna ointment and mercury ointment.

On Friday, March 21st, she was clearer mentally. At 6 A.M. the temperature was 104·6°; pulse 144. Tongue dry and red at the tip. Breathing still slow, deep, and sighing. No pain; no more sickness; no flatus through rectal tube. Urine: 13 oz. in twenty-four hours; acid; sp. gr. 1020; contained one-sixth of albumen and numerous hyaline and a few epithelial casts. She gradually got worse through the day, and died at 1.15 A.M. on March 22nd.

Necropsy, sixteen hours after death. — The abdomen, which was slightly distended, was alone opened. The omentum and intestines were matted together with flakes of recent lymph. The intestines were distended, and contained a large quantity of fluid. There was very little injection of peritoneum in the upper part of the peritoneal cavity. In the flanks, in the right iliac fossa, and in the pelvis was a large quantity of purulent fluid and recent lymph. The peritoneum lining the pelvis was much injected, especially that covering the Fallopian tubes and ovaries. The ovaries lay low down in the pelvis, apparently pushed down by the distended intestine. The bladder was empty and natural, the vagina contained some brownish detritus, the uterus was small and virginal, and the cervical canal contained a little clear mucus. The uterine mucous membrane was pale. The Fallopian tubes were much congested, coated with lymph and surrounded by pus. The right ovary was enlarged to the size of a bantam's egg, coated with lymph, very dark in colour and soft in consistence. On section the surfaces were purple, with scattered yellow spots of commencing suppuration. The left ovary was surrounded by lymph, and was slightly enlarged. The cæcum and vermiform appendix were quite natural. Both kidneys were a little enlarged, pale, and rather soft; capsules were not adherent.

Remarks by Mr. NASH.—This illness at its onset was very indefinite, the only symptoms being nausea, headache, and feverishness, and it was quite uncertain what it was until the fifth day from its commencement, when the patient had a little abdominal pain, and the swelling was felt. Pelvic peritonitis due to a chill was then diagnosed. The cardiac murmur and albuminuria, with presence of renal casts, were unfavourable symptoms. This illness occurred during an epidemic of influenza and scarlet fever, and when numerous cases of tonsillitis were occurring in the hospital, and it was suggested whether any septic mischief was at the bottom of it. There appears, however, to be sufficient cause to account for it otherwise—viz., the fatigue of her first three weeks' hard work, and a serious chill when her menstrual period was due. It afterwards transpired that at the menstrual period, a month before this illness, she fainted, and suffered great pelvic pain. It was unfortunate that there was no pain pointing to the onset of ovaritis, so that local applications might have been applied earlier. It is also, perhaps, to be regretted that laparotomy was not performed, the inflamed ovary removed, and the peritoneal cavity washed out. There was nothing to indicate the presence of the inflamed ovary until sixty hours before death, and for the last forty-eight hours she was so extremely collapsed that it is doubtful whether she would have stood the shock of any operation

[3] St. Bartholomew's Hospital Reports, vol. viii., 1872, p. 133.
[4] Ibid., vol. xiv., 1878, p. 97.
[5] Trans. New York Obstetr. Soc., vol. i., 1879, p. 458.
[6] Trans. Obstetric Soc. of Lond., vol. xxx., 1888, p. 226.
[7] Ibid., vol. xx., 1878, p. 126; also, Lecture on Inversion of the Uterus, Brit. Med. Journ., vol. i., 1886, p. 475.
[8] American Journal of Obstetrics, vol. xxi., 1888, p. 616.
[9] Clinical History of the Diseases of Women, second edition, p. 723. London: 1878.
[10] Amer. Journ. Med. Sciences, Jan. 1880, p. 141.

Medical Societies.

OBSTETRICAL SOCIETY OF LONDON.

Specimens.—Spurious Pregnancy simulating Ectopic Gestation.—Fever in Childbed.

A MEETING of this Society was held on Wednesday, June 4th, Dr. Galabin, President, in the chair.

The following specimens were brought forward :—

Mr. BLAND SUTTON : Microscopical Section and Drawings of the Fallopian Tubes of Monkeys &c., showing the Rugæ.

Dr. AMAND ROUTH : Apoplectic Ovum.

Dr. JOHN PHILLIPS : Uterus and Placenta, with Fibroid.

Dr. HERMAN : Uterus with Purulent Senile Endometritis.

Dr. CULLINGWORTH : Carcinoma of the Ovary.

Demonstration by Dr. DAKIN, on the Dissection of a Fœtus, the subject of Ectopic Viscera. The demonstrator concluded that retroflexion and ectopia viscerum occurred independently of one another. The common cause he alleged to be failure in the development of the hinder part of the gut and its processes, consisting of imperfect development of hind gut, and therefore of allantois. This resulted in absence of umbilical cord, and of one of the umbilical vessels normally projected on the allantois. The outflow of the urine was probably interfered with at the allantoic end of the ureters, producing right hydronephrosis and absence of left kidney and ureter.

Dr. SINCLAIR STEVENSON then read a paper on a case of Spurious Pregnancy simulating Ectopic Gestation. Mrs. S——, aged twenty-four, multipara, after four months' amenorrhœa, with the usual phenomena of pregnancy, had severe pains and a bloody discharge. Three months later she had pains, and passed per vaginam a piece of skin. The pains ceased, and the fœtal movements, which had also been felt, stopped. The next day she had a profuse discharge, and the abdominal swelling rapidly disappeared. The breasts were secreting milk. From this date she felt ill, having constant pains, and suffered from a muco-purulent discharge. A month later there was a swelling the size of the fist. The os was large and patulous. In the right fornix a soft mass could be plainly felt. The uterus was retroverted, and free from adhesions. Its cavity was carefully examined. The diagnosis of an interstitial gestation, with rupture at the fourth month into the broad ligament, was made. Abdominal section was performed, and an ovarian cyst of the left side was found and removed. The other organs were normal. The patient recovered. The author asked whether a cyst which had burst might fill again and yet show no signs of it, such as adhesions or other inflammatory product.—Dr. MATTHEWS DUNCAN said he had published a case in which an ovarian cyst of large size was spontaneously evacuated through the uterus. Subsequently, after refilling, ovariotomy was performed, and no trace of connexion between the cystoma and the tubes or uterus could be found. In another case pus and fæces were discharged in large quantity. The finger could easily pass through the roof of the vagina into the fæcal abscess. It soon healed, and in less than three weeks ovariotomy was performed successfully. At the operation search was made, but no trace of connexion between bowel and vagina could be found. There were no adhesions in the region of the vaginal roof.—Dr. HORROCKS said he had seen a case for one of his surgical colleagues, who was about to perform ovariotomy. The tumour burst internally, and became much smaller. In three weeks it refilled, abdominal section was performed, and an ovarian tumour was removed. No trace of the rupture could be made out, either in the form of adhesions or a scar on the cyst.

A paper by Dr. ROBERT BOXALL, on Fever in Childbed, was next read, in the course of which a series of charts and tables were submitted to prove that the proportion of cases affected with fever declined rapidly and then became steady, but has since diminished slightly; that the decline has in the main resulted from decrease in, and temporary abolition of, cases affected with septicæmia and pelvic inflammation; that in the febrile cases both the duration and the height of the fever have diminished; and that these changes were identical in point of time with certain changes effected in the hospital service. The first chart showed an increase in the number of admissions into hospitals, but a decrease in the number of febrile cases, and particularly of septic cases, and also a diminution in the amount of fever, not only relative but absolute. The first part of the second chart showed that of the whole number of patients delivered in the hospital before and after May, 1884, a drop occurred from 83 per cent. to 40·6 per cent. in the cases followed by fever, and from 40 per cent. to 2·5 per cent. in the cases followed by septic fever; and, further, an improvement was indicated in both respects in the months which immediately preceded that date. The second part gave the average daily percentage of patients in hospitals with pyrexia and with septicæmia and pelvic inflammation, showing a drop from 89 per cent. to 8 per cent. in the daily proportion of cases in hospital with fever, and from 27 per cent. to 1·6 per cent. with septic fever; and, further, indicating an improvement in both respects in the months which immediately preceded that date. Considered as a whole, Chart II. proved that not only had the proportion of febrile to non-febrile cases diminished, but also the proportion of septic to non-septic cases had at the same time still more markedly diminished, that for months together such cases have entirely disappeared, and that simultaneously the duration of the fever had been shortened and its height diminished. It was noted that the true and approximate fever-rates very nearly coincided when the cases of severe and prolonged illness were few in number. It was also demonstrated that the decline in the general fever-rate had in the main resulted from decline in the septic rate, and that though occasional slight rises had occurred during the last five years, the general tendency had been towards improvement not only in the general fever-rate, but also in the septic rate, and that when the general fever-rate had risen it had in the main resulted from increase in the septic element. A description of the hospital and of the method in which its service had been conducted was detailed. Such alterations of a general hygienic nature as had been effected during the period under consideration were dwelt upon. Attention was directed to the fact that during the whole of the time the same principles had prevailed antiseptics had been in constant use, but the details had been changing, especially with regard to the strength and character of the solutions employed.

Reviews and Notices of Books.

Micro-organisms, with Special Reference to the Etiology of the Infective Diseases. By Dr. C. FLUGGE. Translated from the Second Edition, by W. WATSON CHEYNE, M.B. London: The New Sydenham Society. 1890.

THE growing extent and importance of the literature of bacteriology are some of the most striking features of modern science. The subject may fairly be said to dominate pathological ideas, and there is a constant addition being made to researches in a field which is as fascinating as it is full of promise for the rational treatment, and especially the prevention, of disease. We are therefore glad to note that the New Sydenham Society is engaged in placing before the English reader the best and most recent work done in this department on the Continent. Thus not long ago the Society published, under the able and competent editorship of Mr. Watson Cheyne, a volume containing several of the most valued essays on pathogenic organisms, including Koch's "epoch-making" monograph on the bacillus tuberculosis; and now, with the aid of the same editor, it has issued a translation of a work which is admittedly in the front rank of those dealing with the whole subject of micro-organisms.

This monograph of Dr. Flugge is very comprehensive. It is by no means limited, like some works of this class, to a technical description of the various forms of micro-organisms that have been brought to light by the investigations of numberless workers, but it traces the history of the growth of opinion upon the *rôle* of germs in disease, and the methods pursued in their investigation. The

book is, then, one which will be profitably read by those who have no technical acquaintance with bacteriology. Of especial interest are the pages dealing with the rise of the germ theory and the impetus given to its application to disease by Pasteur's discoveries in fermentation. This forms Part I. of the volume. The next part deals with the morphology and classification of the micro-organisms: first of the true fungi, then the mycetozoa, the yeast fungi, and, lastly, the fission fungi or bacteria. Here in turn are described the characters of the various forms of micrococci, bacilli, and spirilla, many of which are pathogenic. The reader will be struck with the great extent to which the bacteriologist has been enabled to discriminate between these organisms; and the extraordinary multiplicity of species of these lowly forms of vegetable life. Nor is the account limited to a merely morphological description. In the section treating of the spirillum choleræ Asiaticæ the author enters largely into the general question of the nature and diffusion of cholera. He gives an impartial account of the alternative views, but it is clear that he ranges himself with the localists or contagionists who received so much support from Koch's discovery of the spirillum. The third part deals with the biology of micro-organisms, and gives in small compass the gist of the knowledge obtained concerning the conditions of life under which the mould fungi and fission fungi exist. Part IV. treats of the vital actions of the lower fungi, a study which includes the subject of ptomaines and of the processes of fermentation and putrefaction. This naturally leads up to the question of the *modus operandi* of these organisms in producing disease, and it forms a chapter full of interest. In the next part, the conditions affecting the death of fungi are described, a subject which involves the discussion of the relative powers of disinfectant agents and the attenuation of viruses. The allied and disputable question of the mutability of the bacteria is discussed in an appendix to this part of the work, and it is pointed out that the property of attenuation, which has been proved in the case of certain bacteria, ought not to be generally inferred of all. The subjects of the distribution and habitat of the bacteria and the mode of spread of the infective diseases form the basis of the following parts. Lastly, there is a succinct account of the modes of investigation pursued by the bacteriologist.

It will thus be seen that this work of Dr. Flugge is one which fairly exhaustively deals with the subject of which it treats, and also that it is written on a very systematic plan. Mr. Watson Cheyne has rendered it into our language in a manner which leaves nothing to be desired. The work which is now open to the profession in this country should do much to enlarge the general notions upon the position which the study of bacteriology has taken. It shows, too, that a wide field is opening up for future inquiry. Day by day, bacterial pathology is securing firmer foothold. In many respects, probably, there will have to be much modification; but it may safely be said that the doctrine of disease germs has prevailed over its adversaries, and that it only remains to carefully sift the facts which are being constantly advanced in particular directions.

Chronic Urethritis and other Affections of the Genito-urinary Organs. Three lectures delivered at the Royal College of Surgeons in June, 1889 By MATTHEW BERKELEY HILL, M.B. Lond., F.R.C.S., sometime Hunterian Professor of Pathology and Surgery at the Royal College of Surgeons of England, and Surgeon to the University College Hospital. London: H. K. Lewis. 1890.

IN these lectures Mr. Berkeley Hill discusses the conditions causing the common and very troublesome symptom, gleet, and their treatment, more particularly with regard to the varieties and effects of topical applications. Mr. Hill has had a large experience in this branch of surgery, and of late years he has used the endoscope to aid in his examination of patients. The volume before us contains six coloured plates of the appearances presented by the urethra during the existence of a gleety discharge. A strong case is made out for topical treatment, and for the systematic use of the urethroscope. It is shown that a gleety discharge may be caused by several distinct pathological conditions, and hence success in dealing with it will only be attained when care is taken to distinguish between these conditions, and to suit the treatment to the individual case. One of the most interesting statements in the lectures bears upon the effects of what is known as "gradual dilatation" of stricture. Mr. Hill has found that the passage of bougies causes a slow splitting of indurated patches of mucous membrane just as certainly as does rapid divulsion of the stricture. The lectures deal with affections of great frequency and importance, and we commend them to the careful study of our readers, who will find them of real interest and value, in spite of manifest defects of arrangement and diction.

"THE STAMPING-OUT SYSTEM AS A SUBSTITUTE FOR VACCINATION."

To the Editors of THE LANCET.

SIRS,—Mr. Henry Taylor, in his original letter, stated that, in the case of Leicester, "there can be no doubt that the immunity it has so long enjoyed is maintained by the presence of a large number of vaccinated people who form a sanitary cordon round any infectious centre." My answer was to the effect that I could not accept that explanation, inasmuch as at Sheffield this "sanitary cordon" existed in a much more perfect form, and yet was powerless in preventing the extension of the epidemic.

In reply to the question as to what could be done "to prevent the disease spreading from an isolated patient to those around him in the distant future, and after the general abandonment of vaccination," and the statement that, "as vaccination will then have become a thing of the past, there will be no vaccinated people, and no virus available," I would admit that it would be an "unfortunate circumstance" after many years of freedom from the disease that an isolated case should occur, but I can see no reason for anticipating the calamity and panic which Mr. Taylor predicts. I would still rely upon early notification and prompt isolation; but I should not be unwilling to discuss the question of employing the virus which would be at hand; and of this Mr. Taylor might have informed himself and all those "who want to know" if he had taken the trouble to read my work on the "History and Pathology of Vaccination." As Mr. Taylor no doubt accepts Mr. Marson as a great authority on small-pox, I would draw attention to his opinion on this subject: "Still, however, under certain unfortunate circumstances, inoculation might be justifiably had recourse to. First, for instance, when small-pox breaks out on board ship, and there is not any vaccine lymph at hand, or a probability of any being soon obtained, and persons are present who have neither been vaccinated nor have had the small-pox. Secondly, when small-pox occurs in any colonial possession, and several weeks must elapse before vaccine lymph can be procured from England or elsewhere; under these circumstances on board ship where small-pox exists, or in houses in the colonies where unvaccinated persons are unavoidably compelled to remain in close proximity to small-pox, inoculation of them would be perfectly justifiable. ..... In ships or in houses in the colonies, then, where there is small-pox and where no vaccine lymph can be obtained to vaccinate those who have not been vaccinated, or to revaccinate those who have been badly vaccinated, and where the inmates cannot get away, no further harm would be done to the public by inoculating those who are presumably unsafe and unavoidably obliged to be resident in such ships or houses."[1]

I am, Sirs, yours obediently,

King's College, June 18th, 1890. EDGAR M. CROOKSHANK.

P.S.—In reference to the letter of your correspondent "A," I may say that I know nothing of the conditions at Keighley, and I am certainly surprised to be told "there is no isolation."

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[1] Marson: Art. Small-pox. Reynolds' System of Medicine.

THE LANCET.

LONDON: SATURDAY, JUNE 21, 1890.

ON page 1394 we print the full text of the latest scheme proposed by the Senate of the University of London for giving the Teaching Colleges and the Royal Colleges of Surgeons and Physicians a due recognition in the plan for the reconstitution of the University, which body, if its scheme be accepted, will then supervise the higher education in London, as well as control examinations for the empire. Subject to certain minor modifications which will probably be arranged, and which more especially affect the power of the external examiner in relation to the collegiate examiners, and the necessary institution of a collegiate preliminary scientific examination, the Teaching Colleges have practically agreed to accept the scheme, and therefore so far as they are concerned prompt action has been taken towards settling this question. Indeed, the Councils of University and King's Colleges urge the Senate to pass the scheme as soon as possible, so that these Colleges may take action from the opening of the next winter session. We regret to hear that in regard to the Royal Colleges the position is very different. The Fellows of the Royal College of Physicians were summoned on Wednesday last to consider, *inter alia*, the "further revised scheme," and to many present this was by far the most important matter on the list of agenda. The President, Sir ANDREW CLARK, was obliged to announce that a further conference was necessary before the question could be laid before the Fellows, and stated that a special meeting would, at an early date, be appointed for its consideration. We hear that the Council of the Royal College of Surgeons are responsible for this delay, and that they are more nearly concerned with weighing the advantages and disadvantages of the scheme to the College in its corporate capacity than with the consideration of how far the plan is a feasible one for lessening the grievances under which the London medical student is suffering. This action is the more ungracious when we find that the following report was read, approved, and entered on their minutes at an extraordinary meeting of the Council on March 27th last. "The committee beg to report that they have considered the scheme for the reconstitution of the University of London referred to them by the two Colleges, and they now recommend the Colleges to adopt the following resolutions—viz.: 1. That the Royal Colleges should offer to coöperate with the University on the following basis: That the examinations in anatomy, physiology, medicine, surgery, and midwifery for the Pass M.B. degree shall be under the control of a conjoint board of the University and the Royal Colleges. 2. That in offering to coöperate with the University the Royal Colleges should act on the understanding that the matriculation and preliminary scientific examinations for the Pass M.B. degree be conducted by the University only. 3. That the Royal Colleges should state to the Senate their opinion that the several Schools of Medicine ought to be made constituent Colleges from the commencement of the reorganisation of the University." In the "further revised scheme" (par. 59) the demands of the Royal Colleges, so far as the examinations are concerned, are conceded; and in par. 33 the medical schools are enumerated as constituent Colleges, while the presidents of the Royal Colleges are made Fellows of the Senate, and placed on the Standing Committee for the Faculty of Medicine. These changes may be distasteful to the graduates of the University; but it can scarcely be believed that such a generous scheme, so far as the demands of the Royal Colleges are concerned, will be wrecked by any selfish action, especially after they have laid down the bases of their coöperation, and these have been accepted *in toto* by the Senate of the University. An opportunity, which may never again occur, of lessening the number of examinations passed by the London graduate, and of making his Pass M.B. work less onerous, is now offered, and we shall know where the blame rests if it is allowed to slip. We can understand the dislike of the present graduate to the new scheme, and we could have hoped, and still hope, to see modifications introduced into the matriculation and preliminary scientific examinations, which we are far from considering well arranged and suitable for entrance to a medical degree; but we cannot think that the just demands of the students will remain unsatisfied, and the prolonged agitation by the London teachers of medicine to effect this end will be rendered unavailing by a professional corporation the emoluments of which are largely derived from the students. If the Royal Colleges fail in their duty to the students, the teachers in the various London schools of medicine must take prompt action.

THE question of the Glasgow University Public Health diploma, which was discussed during the recent sittings of the General Medical Council, may possibly involve the Council in some difficulty as regards the candidates to whom these diplomas were granted, and it certainly places the candidates themselves in a position which is to be regretted. But, at the same time, the action of the Council has come most opportunely to emphasise the fact that these diplomas ought never to be granted except "under such conditions of education and examination as to ensure the possession of a distinctively high proficiency, scientific and practical, in all branches of study which concern the public health."

On Oct. 15th and 16th last the University of Glasgow held an examination for diplomas in Public Health, and after having granted the diplomas to no less than fifty-five candidates, information was communicated to the General Medical Council which led them to appoint a committee to inquire into the circumstances of that examination; and this committee reported unanimously that the examination did not constitute a sufficient test to warrant the granting of a qualification in Public Health. The Council, after much discussion, decided to transmit this report to the University Court of the University of Glasgow, with an intimation to the effect that they will not, in future, permit to be registered diplomas in Public Health which have not been granted

in accordance with the rules of the Council of June and November, 1889; and they further decided that the registrars were not to register any more diplomas granted by that University on the occasion in question, without special instructions from the Council in each case. The circumstances which led to this action are much to be regretted, but the action was, in our opinion, fully justified; indeed, the Council were bound to deal boldly with the question at once, in order to prevent the defeat of an object which they have recently been empowered under statute to maintain.

It will be remembered that under the Local Government Act, 1888, the exclusive privilege of holding all the best appointments as medical officers of health, both in counties and in sanitary districts, is—subject to a few conditions which will be temporary only in their operation—granted to medical practitioners who hold diplomas in Public Health which have been registered by the General Medical Council; and it is obvious that this privilege has been granted mainly to secure for the public a staff of skilled officials who are really competent to discharge the important duties attaching to the appointments in question, and that the General Medical Council cannot properly register diplomas which they know do not secure this end. The ordinary medical curriculum does not profess to provide the education needed for these diplomas, it only supplies the foundations on which the specialty of public health work should be based; and the difficulties which have been experienced in acquiring the needed technical and other additional instruction have been such that when these diplomas were first granted by different bodies there may have been, and in some cases doubtless was, some hesitation in applying tests that might, under the circumstances then existing, be regarded as too severe. But the legislation of 1888 must of necessity sweep away all such hesitation. The bodies granting these diplomas have had imposed upon them a definite duty towards the public; and this is to supply the counties, large cities, and boroughs, and other populous areas with officers who shall distinctly be experts in that branch of medicine concerning which they profess to have special knowledge. And we believe that, in view of this consideration alone, the attitude adopted towards these diplomas by the General Medical Council will receive the approval of the medical profession.

But the incident involves another consideration. If medical experts are alone to hold these appointments, some definite agencies ought to be provided by which the special knowledge which is needed can be acquired without needless difficulties and hindrances. Beyond the partial training in physics, chemistry, and allied scientific subjects which form part of the earlier instruction needed in the case of medical students, and the later instruction in the general principles of medicine which have to be applied to public health work in common with all branches of the practice of medicine, nothing can be expected in this sense during the ordinary medical curriculum, which is already fully occupied. The course of special instruction needed, must, of necessity, be a post-graduate course, and it becomes a question by whom this phase of medical education should be undertaken. The demand for such a course will certainly lead to its being supplied in some form or other, and it may be well for the various medical schools to consider whether by some sort of combination, or otherwise, this work should not be carried out under their auspices, instead of its being left to organisations which are independent of the principal seats of medical teaching. Attempts have, we know, been made in this direction by certain courses at one and another medical school; but that which should, and certainly will henceforth be, required of candidates for diplomas in Public Health has not yet been properly provided by any of the educational bodies connected with the science of medicine. There are strong and increasing reasons for identifying the preventive aspect of medicine with its curative branches; there are no sound reasons for separating them; and if a high standard is to be maintained in respect of diplomas in Public Health, the great schools of medicine in this country would do well to take a leading part in organising the necessary course of study.

A STRONG and fully representative meeting of the Association of Fellows of the Royal College of Surgeons of England was held on Saturday last, in the rooms of the Royal Medical and Chirurgical Society. The President of the Association, Mr. GEORGE POLLOCK, presented a report (*vide* page 1393), which conveys to the profession a clear and temperate exposition of the objects of the Association—a justification of its increasing activity and necessity for its continued existence.

There was not one subject touched upon in the report that might not properly have been discussed by the Fellows in their own College, for Mr. HOLMES struck the true keynote of the Association in his remarks at the meeting. He reiterated that the Fellows who form this Association are not hostile to the Council of the College, but are zealous for increasing its influence, and anxious to add more weight and authority to the deliberation and decisions of the governing body by affording a guarantee to the profession and the public that the Council does carry with its acts the full and ascertained consensus of the majority of the body corporate, and faithfully reflects its opinion. In support of this contention we may refer to the opening remarks of the President of the College, Mr. JONATHAN HUTCHINSON, at the Metropolitan Hospital Sunday Fund Meeting. He said: "The honour of addressing you on this occasion, and the opportunity thus afforded me of pleading as best I may for the noble cause of medical charity, has come to me mainly on account of the position which, through the kind good opinion of my colleagues, I at present hold in the College of Surgeons." How much greater weight would the Presidential voice carry if the word "*College*" could have been substituted for "*colleagues*." The subject of the relationship of the Royal College of Surgeons with the Senate of the London University was discussed. A subcommittee of the Council of the College of Surgeons has been appointed to represent that body in the deliberations with the College of Physicians, the London University, and the representatives of King's and University Colleges. This subcommittee consists of *five* Fellows, whose business it is to report to the Council, consisting of *twenty-four* Fellows. Here we find, on comparing the numerical weight of Fellows of the Royal College of Physicians with that of the College of Surgeons of England, that while the College of Physicians is repre-

sented by more than 300 Fellows (the whole body), the College of Surgeons of England deputes five Fellows (of whom certainly not more than two can claim to have anything approaching academical training) to represent the College of Surgeons with its over 1100 Fellows and 16,000 Members. As yet no intimation has been given by the Council of the College that these deliberations shall be submitted to the Fellows, prior to their final adoption or rejection by the Council; we will therefore quote a paragraph from a report drawn up by the President and Vice-presidents of the College of Surgeons, dated November 16th, 1885. Having in this report declined to accept the resolution passed at a general meeting of Fellows and Members, October 29th, 1885 (one of the largest ever held in the theatre)—viz., "That in the opinion of this meeting no alteration in the constitution, or in the relations of the College, or in any of the by-laws or ordinances shall be effected without the consent of the Fellows and Members convened to discuss the same"—the President and Vice-Presidents combat the submitting of by-laws and ordinances to a meeting of the Fellows and Members, stating that it would lead to complete obstruction; but, they add, "With the larger questions, which more rarely arise—such as those which concern the constitution of the College—the case would be different. On these questions the Council will always be glad to have an opportunity, as far as practicable, of consulting the Fellows and Members."

The present issue between the College of Surgeons and the London University is assuredly a large question, and one affecting its constitution. Fellows of the College of Surgeons ought to possess not a merely consultative, but an authoritative vote, similar to that enjoyed by their brother Fellows of the Royal College of Physicians. It is clearly for the Fellows themselves to say if these really progressive reforms shall be withheld from them.

The other subject that cropped up was that of the voting papers at the Royal College of Surgeons. We can see no reason why the Secretary at every election should not send a voting paper, with a correct list of the candidates, to each Fellow of the College directed to his postal address—those Fellows whose addresses are either unknown or shifting must be in the minority, so they might apply specially; this improvement will be properly urged by the deputation of Fellows of the Association, when they meet the Council in their own College, together, we understand, with a special request that, for the future, the printed forms of application for voting papers (addressed by the aforesaid minority of Fellows to the Secretary of the College) shall not be couched in such terms of complete servility as those of 1890.

WE are disposed to think that Mr. STANHOPE must have begun to realise the folly of the course he adopted, on the instigation of his military advisers, in ignoring the recommendations of Lord CAMPERDOWN'S Committee on the grievances of the army and navy medical officers. That course would appear to indicate that he thinks the military instincts of the staff at the Horse Guards more deserving of consideration than the just claims of the medical officers. We say advisedly "just claims," for they have been carefully investigated and endorsed by a committee of Mr. STANHOPE'S own selection. To refuse to adopt the recommendations of his own Committee, with the exception of one or two of minor importance, and even these in some respects modified, was, to use the mildest expression, a very unusual course, but one which has been productive of important and, we should imagine, on Mr. STANHOPE'S part, unexpected results. It has excited a very strong feeling in the profession at large that the army medical officers are treated with great injustice, and that, in deference to the prejudices of the so-called combatant officers or at least a section of them, they are denied the position and privileges which ought, as a matter of right, to be accorded to them as commissioned officers of the army. As a natural consequence, the question of this unfair treatment has been brought under the notice of the leading medical corporations, and has elicited from them a very strong expression of sympathy. The Royal Colleges of Surgeons of London and of Dublin and the Royal College of Physicians of Edinburgh have forwarded memorials on the subject to the War Minister, and the Royal College of Physicians of London has decided to ask him to receive a deputation to discuss the question. We understand that it is intended to press upon the Minister the necessity of granting distinct military rank and titles with a view to putting an end to those perpetual misunderstandings which are felt to be injurious to the interests of the army. Had Mr. STANHOPE adopted the recommendations of Lord CAMPERDOWN'S Committee on this point, and reconstituted the ranks of the medical officers with compound titles, we believe the change would have been generally accepted as satisfactory. But the refusal to do so on the ground that such a change was not acceptable to his "military advisers," coupled with the published evidence of those advisers, has completely altered the conditions. There has been ever since we can remember the state of the service a very hostile animus towards medical officers on the part of the authorities at the Horse Guards, and they have not hesitated to show it when opportunity offered. We need only refer to the manner in which SIDNEY HERBERT'S warrant was practically annulled, the recent abolition of relative rank on the motion (as appears from the evidence) of the Horse Guards, and the recent transfer of the medical department to be a branch of the Quartermaster-General's staff, as proofs of this feeling. While we shall regret any change which may substitute a purely military for a professional, or even a mixed, title as being an apparent ignoring of professional status, we cannot but feel that it has been forced upon the medical officers by the hostile action of the military authorities, and the inexplicable line taken up by the War Minister. That some change must be made is inevitable, for if the various Colleges express a strong feeling of dissatisfaction, which will certainly be taken up by the teaching bodies, there can be no doubt that the supply of candidates will be cut off, and none but the most inferior class—the very sweepings of the medical schools—will be induced to enter the service. The interests of the nation demand that none but well-qualified men should be entrusted with the care of the health of our soldiers, and by such men only can the physical efficiency of the army be maintained; but we do not believe they will be induced to enter the service if met with that wanton disregard of their reasonable requirements which Mr. STANHOPE has gone out of his way to exhibit.

Annotations.

"Ne quid nimis."

CHOLERA IN EUROPE.

WHILST watching to see whether cholera was this year to advance from Mesopotamia and Persia by means of the lines of human intercourse between those countries and South-eastern Russia news has come to the effect that Western Europe is again the seat of this disease, an outbreak having occurred in one of the Mediterranean provinces of Spain—namely, Valencia. The first place affected was the village of Puebla de Rugat, with a population of some seven hundred inhabitants, where the disease is believed to have commenced on May 13th last. At first came the usual denials as to the true character of the malady; then it was admitted that it was choleraic in character; and, lastly, came an official announcement by the Minister of the Interior to the Senate to the effect that cholera did certainly prevail in Valencia, but that it was not Asiatic cholera. This last statement involves an extremely interesting consideration. The commencement of the disease in Puebla de Rugat is said to have corresponded with the excavation of a considerable amount of drain-sodden earth in the village; and, remembering the history of the province of Valencia during the European epidemic of 1884–86, it is quite possible that we may here be seeing a recrudescence of the disease, owing to the circumstance that the contagium of cholera, which had been lying dormant in the earth, has by reason of the excavations and consequent exposure to sun, rain, and other new conditions, become again active; and in this very limited sense the present outbreak may fairly be regarded as a local cholera, rather than a cholera newly imported from Asia or elsewhere. But the history of the disease in Spain is essentially that of true cholera, as that term is generally understood. By June 15th it had steadily spread, until out of one hundred cases there had been twenty deaths. In the meantime, also, it had extended to other places near at hand, and notably to Montichalvo, where the well-known virulence of real cholera showed itself by causing seven deaths out of a total of fourteen attacks. People now fled from the affected localities, and in this way further diffusion of the disease occurred, one death taking place at Albaida, and one attack being reported from Valencia itself. The latest intelligence refers to sanitary cordons around the infected villages, from which two-thirds of the population had already escaped; to certain operations intended to secure the burning of the polluted soil excavated at Puebla de Rugat; to quarantine restrictions against arrivals from Valencian and other Spanish ports; and to measures of sanitary reform after the mischief has been induced. Some diminution in the epidemic is also reported. Recalling the circumstances of the last epidemic in Spain, it should be remembered that some 300 cases of cholera occurred in that country in 1884, the main outbreak being in the province of Alicante, but Valencia also suffering. This occurrence was followed in 1885 by a widespread epidemic which, according to the official returns of the Director-General at Madrid, caused 338,685 attacks and 119,620 deaths, the deaths in the province of Valencia amounting to 21,612. And lastly, cholera still prevailed in certain parts of Spain during the early months of 1886. There is thus an interval of four years between the former and the present outbreak; and it is not difficult to conceive that the link between the two may have remained on Spanish territory.

THE COLLEGE ELECTION.

THE issue to be decided at the coming election is a clear and pronounced one. The Fellows of the Royal College of Surgeons may now roughly be divided into two sections; one division thinks that the government of the College "cannot be better," the other party thinks that it "cannot be worse." With reference to the first division, there are men who conscienciously quote the government of the College of Surgeons as ideal and perfect, incapable of improvement, too precious for interference or rough handling. They consider the act of peeping into the collegiate rooms to be an intrusion on the part of the Fellows and Members: the idea of entering to be one of sheer rebellion and insubordination. As regards the second class, its adherents maintain that the government of the College of Surgeons instances the preservation and perpetuation of the bad traditions of the old City Corporations, their *hauteur* and selfishness; and that it is painfully behind the time in its representative aspect. The course of conduct for representatives of the first division is to let things alone, and maintain the *status quo*. The line of action for representatives of the second division is to insist upon better representation; the granting of larger powers to the body corporate; the concession to the Fellows, at least, of their right to be more frequently consulted and to possess a more efficient control over the executive; and the recognition of the principle that, so far as possible, the paid officers of the College—i.e., the examiners—shall be eliminated from the governing body. It is for the Fellows themselves to decide these points, and it does not entail a difficult self-examination to answer definitely, "On which side am I to vote?" Although the relinquishing of antiquated ideas on certain forms of government may give pain to some, yet to others it is more painful still to hear their own College quoted as an anachronism, as a survival of unfitness, and to feel that as Fellows, far from being abreast, they are not even in the running with their compeers of other Colleges.

THE ESSEX COUNTY COUNCIL.

AFTER a somewhat lengthy discussion on the question of the election of a medical officer of health for the county of Essex, the matter has been adjourned for a period of three months. The alternative which was before the meeting was to elect Dr. Thresh, who holds office for the Chelmsford and Maldon districts, to serve as county officer at a retaining fee which would cover examination and compilation of the annual reports of local health officers, and to act separately as an expert in special cases as occasion might require. We are by no means of opinion that such a course would be altogether unwise. Essex is not a county where pressing questions of river pollution are prominent, and pending a better understanding as to the various duties expected of a county health officer in such an area, we can understand that some such tentative arrangement would be acceptable. But, unfortunately, Essex has again put the matter aside for three months, and this although, as we have already shown in a former article, there is much in the vital statistics alone of this county which calls for early investigation and advice by an expert in public health.

LUPUS OF THE LARYNX.

A CASE of lupus of the larynx has recently occurred in Professor Rydygier's wards in Cracow, and an account of it is given by Dr. Langie in the *Przeglad Lekarski*. The patient was a labouring man, aged thirty-two. He had suffered from a slight cough, hoarseness, and difficulty in breathing for a couple of years, these sym-

ptoms having increased so much during the preceding two months that he had been obliged to seek medical advice. Externally, there was nothing to be detected, except that the subclavian lymphatic glands were much enlarged. On examination with the laryngoscope a grey growth could be seen, with a rough, granular surface, extending from the base of the epiglottis into the right half of the larynx, and involving the right vocal cord. On the left half of the larynx discrete tubercles, of the size of a millet seed, could be seen, and the rima glottidis was much narrowed. In consequence of the extreme dyspnœa from which the patient was suffering laryngotomy was performed, and then, as the growth appeared to be of a malignant character, the larynx was excised. Four months later the patient was fitted with a Bruns' artificial larynx, which proved quite satisfactory. The microscopic examination of the tumour showed it to be lupus.

TREATMENT OF INSANITY IN THE WEST RIDING.

IN a leading article on "Provision for the Insane Poor in Yorkshire," in our issue of March 23rd last, we took occasion to refer to the steps taken by the West Riding County Council, with a view to checking, if possible, the seeming increase of insanity in the county. The Council approved of arrangements being made at the West Riding Asylum to afford an opportunity of consultation, free of charge, to those suffering from mental or nervous diseases, especially in their incipient stage. We stated that this was decidedly a step in the right direction, and that with the exercise of tact and discretion, the experiment was one that ought to prove very successful as a provision for the insane poor of Yorkshire. The *Leeds Mercury* of the 4th inst, referring to this subject, states that the attempt thus made to treat insanity in its incipient stage has been so far successful that it has been decided to extend the system to the other two West Riding asylums, and the necessary arrangements have accordingly been made at Menston Asylum for the treatment of out-door patients. It is believed that shortly similar arrangements will be made at Wadsley Asylum. We gladly call attention again to this matter, as we are satisfied that much good may result if a similar boon is extended to the poor in other counties. Apart from the great benefit that may be derived in individual cases by this early recourse to the advice of experienced physicians in mental cases, there will result a more general feeling of confidence in the usefulness of asylums, and the ignorant apprehensiveness which still lingers in the minds of many as to the nature of asylum life will be proportionately dispelled.

BILATERAL TROPHIC LESIONS FOLLOWING OPERATIONS ON THE CEREBRAL CORTEX.

AT the last meeting of the Société de Biologie MM. Langlois and Richet brought under the notice of the members some interesting observations which they had made on dogs that had been the subjects of experiments which involved removal of a considerable portion of the cerebral cortex. The first animal had a large part of the "motor region" removed on the right side of the brain. During the next fortnight it wasted rapidly, although its appetite was ravenous and sores developed on the outer aspect of the tibio-tarsal articulation in each hind leg. There was also keratitis of the opposite eye. A very careful necropsy was made, but no cause except the cerebral lesion was found which could account for the trophic lesions. In another dog the occipital lobe was removed, the angular gyrus being also injured. The animal appeared to recover perfectly from the operation, but a month later a small opacity was noticed at the edge of the cornea on the same side of the body. This opacity quickly spread, until the whole cornea became obscured. It gradually cleared up, and in two months the cornea had again become quite clear. The occipital lobe on the other side was then removed, and two opacities quickly appeared on each side of the cornea, which rapidly spread, and then slowly cleared. A careful necropsy was made. No damage to either trigeminal nerve could be made out, and the authors regard the keratitis in each of the three cases as trophic in character, and dependent on the extensive lesions of the cerebral hemispheres.

OXFORD UNIVERSITY AND MEDICAL EXAMINATIONS FOR WOMEN.

A PAMPHLET recently issued by Professor Case, setting forth that it was, in the opinion of the writer, not proper to admit women to any medical examination in a University of men, especially if they were exempted from certain of the more searching subjects of the preliminary examination, received its quietus at the hands of the Oxford Congregation on the 17th inst., by the promulgation of a very important statute. This statute authorises the delegates of local examinations to use the examinations for the degree of Bachelor of Medicine for the examination of women. It is admitted that the statute provides that women who are not content with the ordinary medical examinations elsewhere might avail themselves of the higher and more scientific test of this University. On the other hand, it is denied that these examinations entitle to practise or to claim connexion with the University in question. The statute, it seems, merely permits such examinations to be used for women as are already allowed in the case of other examinations. The congregation to whom the statute was submitted passed the preamble by 75 to 58 votes, and thus took the first step in the direction of a petition of certain members of the University which was addressed to the Government more than fifteen years ago, praying for the admission of women to the medical degrees of the University of Oxford.

ALCOHOL AND CHILDHOOD.

WE most decidedly and heartily give our support to the doctrine that, as a rule, children and young people do not need alcohol, and are much better without it. Their appetites are good, their cares few, and the more simply they live the better. Anything that can be done in Board Schools, and in public schools too, for that matter, likely to promote a thorough and intelligent independence of alcohol should be encouraged. But it should be well done. The more moderate and medical the statement of the case the better. Young people resent intemperance in teetotallers as well as in other people. It must be remembered, too, that the real way to make children temperate is by setting them a good example at home. If children see alcohol produced in all shapes, and at all hours, and for every visitor at home, or if they are sent out as messengers twice or thrice a day to the neighbouring "public," all the teaching of the schools will go for nothing.

NIGHT NURSING AT WORKHOUSES.

CONSIDERABLE public interest attaches to a controversy which has for some weeks divided the opinions of the Halifax Board of Guardians. According to the district inspector and certain members of the Board it is highly desirable to have a night nurse on regular duty in the infirmary. There are some 250 sick persons at present in the wards, and the staff of day nurses is exceedingly limited, as the assistance of able-bodied inmates, naturally enough, is utilised as much as possible for nursing purposes. They have, therefore, brought forward the very moderate motion

that a single night nurse be appointed, if only on trial for six months, as a safeguard in case of sudden emergency. The proposal, though at first favourably received, has been finally negatived, since it appears that many other houses have no such arrangement. Any night nursing required will therefore still be entrusted to pauper inmates, or to the already overtaxed contingent of day nurses. There is, it is said, no need for any further provision; the majority of patients under treatment being chronic invalids, a single nurse would be of little service, and the cost of several could not conveniently be met. As with most other discussions, there is truth in both of these views. It must, however, be sufficiently evident that the service of a trained night nurse is no mere luxury. Some developments of disease, as is well known, are usually nocturnal; death itself very commonly occurs during the earliest hours of the morning, while a fit or other sudden seizure may call for prompt attention at any time. The request for at least one night nurse is therefore a very reasonable one, and it is one which might be met without much difficulty by allotting night or day duty in rotation to different members of the nursing staff.

THE UNIVERSITY OF ABERDEEN AND "THE FIFTH YEAR."

THE recommendations of the General Medical Council in reference to medical education have already begun to bring forth fruit, for the General Council of the Aberdeen University have passed a report of the Subcommittee on Medicine which embodies many valuable reforms. The standard of the preliminary examination is to be raised, and this ordeal must be passed in all subjects before the medical curriculum is entered on. The curriculum is to be extended to five years, the number of systematic lectures reduced, and the fifth year is to be devoted to clinical and practical work, and will not involve compulsory attendance on University or other systematic lectures. Clinical and practical work are intended to mean hospital or dispensary attendance or pupilage to a registered practitioner. Other resolutions affecting the internal arrangements of the University, which include the admission of women to all the Faculties, were also carried. We congratulate the authorities of the northern University on receiving the recommendations of the General Medical Council so cordially, and in meeting them so promptly. Such practical and decisive action is, we are sorry to say, not characteristic of many of our licensing boards, whether corporations or Universities.

THE HAGIOLOGY OF THE HEALING ART.

MEDICINE has her legendary saints as well as the Church, and a gallery of their portraits, in a literary sense, would be quite as interesting and possibly as voluminous as the "Acta Sanctorum." Germany alone could furnish an imposing contingent of such knights-errant of the healing art—rich as are her old monastic or municipal archives in manuscript accounts of local heroes or heroines who relieved the sick and the wounded in face of odds as overwhelming as any surmounted in the annals of chivalry. "Die Historie von Sct. Quirinus" (Munich: R. Fischer) is a specimen—a very favourable one, we admit—of how much that is romantic may be unearthed from the dust heaps of old libraries or rescued from the gradually fading medium of oral tradition. The little volume above referred to is taken from such sources as these and from the books that have been framed upon their testimony; and, what with its artistic illustrations and its 107 pages of carefully and scientifically sifted matter, it presents an *ensemble* of historic fact and portraiture which the reader will find as fascinating as the most dramatic fiction of our own day. The style retains the simplicity of the mediæval chronicles from which it is, in great part, drawn, and, without affectation of archaism, contrives to impress on the reader that he is always in the atmosphere of the legendary and the quaint. Saint Quirinus appears in the successive stages of his eventful life—his whole career, in all its moving incidents, is put before us with a picturesque power that belongs to the best period of art, æsthetic and literary. The volume closes with specimens of old hymns, one of which has been set to music by the director of the Regensburg choir, Dr. F. X. Haberl, and with the marvellous "Saga" of the origin of the Tegern-See. The author's (or shall we say the authoress's?) name is represented by the initials A. R., discernible as those of a lady belonging to a Bavarian ducal house, who has already placed the world of science, literature, and art under special obligations. Her book, it is hoped, may stimulate others of her compatriots to work as wisely and as well in the same mine of semi-historic medical lore, and to make additions to the portrait gallery she has so effectively begun till the connecting links between the mediæval and the modern are complete.

FINE FOR ACTING AS AN APOTHECARY.

AT Alfreton County Court, Judge Barber, Q.C., lately heard a case in which the Master, Wardens, and Court of Assistants of the Society of Apothecaries of the City of London claimed £20 from Edward Merrick Greensill, a chemist and druggist, with a midwifery diploma from the Coombe Hospital. On the strength of these facts he practised as a club surgeon, gave death certificates, attended cases of inflammation, &c. His Honour was very decided in saying that such conduct constituted a breach of the Apothecaries Act, which, he was thankful to say, was still in force. The defendant had undoubtedly brought himself within reach of the law. His Honour was not disposed to abate the fine, for the defendant had long and persistently acted as an apothecary. The extent to which he had carried this practice was, in the estimation of the judge, an aggravation of the offence, and he ordered the payment of £20 with costs. The Apothecaries' Society deserve credit for exposing such false practice.

PROFESSOR GAIRDNER AND THE WHITE CROSS SOCIETY.

MANY apostles of purity exist in our profession, and have spoken in manly terms, and with all the weight attaching to high medical authority, of the sin and folly of impurity. Amongst the latest of such utterances is that of Professor Gairdner of Glasgow, who agreed to give an address to the Edinburgh University White Cross Society. Dr. Gairdner discussed the question mainly from the standpoint of Christianity, declaring that, speaking practically, he thought it impossible for a man to keep himself pure except through Christian influences. He claimed for Christianity that it alone of all the religions and philosophies of life had created for us a word (ἀγάπη) in which *love* can be expressed without any coarse or double meaning, and this even when it of necessity includes or comprehends the sexual relation between man and wife. Before this the words used were of low and base import. By the substitution of the word ἀγάπη the whole conception of the subject had been refined and spiritualised. In accordance with this fact, the domestic principle—the principle of home as connected with the sexual relation—has been sanctified, and the world has been taught by the Founder of Christianity that it is possible to speak even to degraded women so as only to revive in them the dying embers of their own self-respect. Dr. Gairdner's address is published separately as the third of a first series, by the Darien Press, Bristo-

place, Edinburgh, and is well worth the attention of students in Edinburgh and elsewhere. Nothing is more honourable to the profession than that its leading members, in tones of sympathy rather than authority, should support and encourage their younger brethren in the medicinal and other faculties in the effort to keep themselves pure. Dr. Gairdner might have added terrible force to his argument by recalling his experience as a physician in cases all too frequent, where such lofty conceptions of love are not entertained. But he set himself a higher task, and he has discharged it in the true spirit of a Christian physician.

ROYAL COLLEGE OF PHYSICIANS.

AT a comitia of the College on Wednesday, 18th inst., Sir Andrew Clark, Bart., President in the chair, a communication was read from the Chairman of the Examiners in Chemistry, referring to some criticisms of the proposed schedule for the examination in chemistry and chemical physics. A letter from the Secretary of the International Medical Congress, Berlin, expressed satisfaction at the appointment of delegates to represent the Royal College of Physicians. From the Metropolitan Asylums Board two letters were received, together with a report on the scheme for making the fever hospitals available for clinical instruction. Communications were received from Messrs. Lee and Pemberton, Lord Cadogan's solicitors, referring to certain proposals respecting the "Physick Garden" at Chelsea in the occcupation of the Society of Apothecaries. The land is said to have become unsuitable for the purposes for which it was orginally bequeathed by Sir Hans Sloane, and before it can be disposed of it is desirable to obtain the consent of the Royal Society and the College of Physicians, who have reversionary interests in the trust. After some remarks the question was referred to the Council. A letter from Surgeon-Major Johnston, M.A., M.D., with reference to the Army Medical Department, having been printed and sent to all the Fellows, was taken as read. Dr. Farquharson, M.P., then moved that the College, either singly or together with other licensing bodies, should approach the Secretary of State for War, as a deputation, to represent the grievances and claims of the Army Medical Department. This motion, having been seconded by Sir Dyce Duckworth, led to some discussion, in which Dr. Balfour, Sir Guyer Hunter, Sir Joseph Fayrer, Dr. Pye-Smith, Dr. Joseph Ewart, Dr. Playfair, and others took part. In the end the motion was agreed to with only two dissentients. Owing to some differences of opinion no report from the delegates of the two Colleges was ready upon the Further Revision of the Scheme for the Reconstitution of the University of London, and it was announced by the President that in due course a special meeting would be summoned to consider the report upon the scheme. Dr. C. Theodore Williams moved that a conversazione be held by the College in the month of July this year, but the proposition was not received with favour, and was ultimately lost. A report from the Committee of Management was adopted, after a few explanatory remarks of the action taken with reference to an application from the honorary secretary of the College of State Medicine.

THE PATHOGENESIS OF YELLOW FEVER.

DRS. FINLAY and DELGADO, who have for some time been engaged in investigating the bacteriology and pathology of yellow fever in Cuba, recently read a paper on the subject before the Havana Academy of Sciences, in which they detailed their experiments and discussed their significance, with special reference to the researches of Dr. Sternberg, who a short time ago paid a lengthened visit to the island for the purpose of studying the subject. They say that Sternberg's micrococcus Finlayensis has been found by Dr. Kinyoun on the skin of patients suffering from malarial fever in localities where yellow fever does not occur, and that it is therefore impossible that this micro-organism can bear any relation whatever to the causation of yellow fever. The micrococcus tetragenus versatilis has been found in the serous fluid of blisters on yellow fever patients in spite of the most careful disinfection of the skin in one-half of the cases examined, and in three-eighths of the specimens on which observations were made. This micrococcus was found in the blister serum of persons resident in Havana and acclimatised, in two out of seven cases examined and in three-thirteenths of the specimens taken, but only in cases where the disinfection of the skin had been omitted or in which it had been but imperfectly performed. Nothing of the sort was found in any of the eight specimens taken from four persons whose skin had been as thoroughly disinfected as in the cases of the yellow fever patients.

SUMMER DRINKS IN INDIA.

THE *Medical Record* of Calcutta contains some interesting remarks upon the beneficial effects to be derived from non-alcoholic drinks in the height of summer. After remarking that the very bane of European existence in India lies in the habits of eating and drinking, physiological arguments are adduced to show that highly carbonised materials are very deleterious in hot climates. The custom of the Moguls, who for luxury have had no equal in Indian history, is referred to as offering a fitting example. Their drinks consisted of milk, sweetened waters, or sherbets, prepared from subacid fruits, such as lemons, tamarinds, pomegranates, &c., flavoured with rose or Keora essences, date juice, numerous vegetable tisanes, and some infusions of glutinous seeds flavoured with sugar and essential oils. These were often cooled with ice collected in pits, where it was stored during the winter months. The Oriental races, it is asserted, suffer from few of the diseases which are common to the copious meat-eating, wine-drinking Europeans. For a hot day, a light vegetable diet is recommended, with a spare quantity of meat food and an abundance of cooling, non-alcoholic drinks. Ice is regarded as a necessity, and coffee, tea, and cocoa are to take the place of whisky-and-soda. The use of aerated waters, prepared from pure and wholesome ingredients, and the admixture in them of the numerous fruit flavourings which abound in the tropics, are regarded with favour, as likely to offer a lucrative source of income to persons engaged in such trade, while also giving the European community a very acceptable form of summer drinks. This suggestion has already to a certain extent been put into practice both in this country and in America, but there is still some uneasiness as to possible evil consequences resulting from the consumption of large quantities of iced drinks when the atmospheric temperature is high. As regards light diet and extreme moderation in the use of alcohol, however, the recommendations are admirable, and might well be followed here.

THE METROPOLITAN ASYLUMS BOARD.

THE cost of maintaining patients in the institutions under the control of the Metropolitan Asylums Board will be found to be of interest. Considering first the asylums for imbeciles the following was the daily cost for maintenance and clothing for the last half year: Caterham Asylum, with an average of 1980 patients, a fraction less than that of Leavesden, which, with an average of 1970 patients, was 6¾*d.* per day; Darenth, with an average of 1076 patients, 6¼*d*; Darenth School Asylum, with an average of 666 patients, the establishment charges came to a nearly equal amount in each case; the cost of the training ship,

Exmouth, was 10½*d*. The fever asylums showed a much higher daily cost. The Eastern Hospital, with an average daily number of 299 patients, 9*d*. a day; the South-Eastern, with a daily average number of 287, was 10*d*.; at the Western Hospital, the average number was 185 patients, and the cost was 6½*d*.; at the South-Western, with an average number of 128 patients, the cost was 9*d*. and a fraction; at the North-Western, with an average of 207 patients, the cost was 8½*d*.; at the Northern, a fever convalescent hospital, with 497 patients as a daily average, the cost was slightly less than 9½*d*. The small-pox hospitals do not bear comparison with the above, owing to the small number of patients in the hospital, but, calculated on 372 days' maintenance, the cost was 1*s*. 4¾*d*. per day. The total expenditure was necessarily large, but when it is recollected that it related to a population of nearly five millions, and that the hospitals serve a useful purpose in removing infectious persons from their homes, the most economical ratepayer will not be disposed to grudge the sum which he has to contribute.

GRADUATION THESES.

THE thesis or dissertation which is required by most Universities both at home and abroad from candidates for the M.D. degree represents in many cases a large amount of research upon various—perhaps some very uncommon—topics. These works are therefore valuable to authors, and it seems a great pity that it is so difficult to discover what subjects have been chosen by the enormous number of graduates who have been obliged to print their theses. As we have previously mentioned, the Russian medical faculties require very elaborate theses, and they generally contain valuable bibliographical references. Though most of the theses themselves are in Russian, the references are given in the languages in which the papers referred to were written, so that the bibliographical lists are intelligible to persons who are not acquainted with the Russian language. Quite recently, M. Petroff, a St. Petersburg publisher, has brought out, in addition to a catalogue dealing with theses in the Russian language from 1860–1888 published last year, a "Catalogue des Thèses concernant la Médecine et l'Art Vétérinaire, présentées à l'Académie de Médecine et aux Universités Russes" up to 1889, which is a supplement to the former catalogue, and especially interesting, as it contains references to a large number of theses in the German language, from the university of Dorpat, which the former catalogue did not.

SANITATION AND CHOLERA IN SPAIN.

THE town and province of Valencia has won an unenviable notoriety throughout the world. It is celebrated as the seat of the most severe of recent cholera outbreaks. Now, after a brief respite of only four years, we are informed that the cholera has again made its appearance in this same province. What, we should like to know, has been done during the last five year at Valencia to prevent the cholera returning to this town? Unlike many continental towns, Valencia drains direct into sewers. There are hardly any cesspools. The sewers, in some instances, date back to the time of the Moorish occupation. There are great underground passages some sixteen feet broad, and in several instances the fall is only equal to 3 in the 1000. Of course it is impossible to efficiently flush such sewers; water in a hot, dry climate is not plentiful. Even the newest sewers have been built on the old, bad principle, and are not self-cleansing. Some soil pipes are trapped; during the cholera epidemic a great number of these drains were not trapped. Have they all now been put in order? During the cholera epidemic houses and apartments were allowed to be inhabited, though many of the bedrooms had no light, no windows, no air except what they borrowed from other rooms. It was in these unventilated rooms that by far the larger proportion of cases of cholera broke out. Have these rooms been closed and declared unfit for habitation by the authorities? In many houses the closets were situated in dark cupboards having no windows or ventilators giving on to the outside. Do such closets still exist? In other houses, even in some of the very best houses, the closet was placed in the middle of the kitchen, right away from the window, ventilating therefore into the very place where the food of the family was cooked and prepared. Has all this been altered? A Bureau of Hygiene was appointed to watch over the health of the town; what has this Bureau done? Spain is a poor country. The municipalities are not rich. They are not often in a position to defray the cost of vast sanitary works; but the indispensable measures of precaution suggested by the above questions would not involve in their application any great cost. Also a considerable portion, if not all the cost, could be imposed upon the owners of the property; thus the public at large need not be heavily taxed. We would again ask, What has been done? and this is a question, we urge, we have every right to put, because it is a matter of international concern. The gross neglect of the most elementary sanitary laws has rendered cholera possible, has helped its development to such an extent as to not merely bring disaster upon Spain, but to jeopardise the interests and security of many other States. Perhaps we are on the eve of a recurrence of similar disasters, and the responsibility of the Spanish authorities will be heavy, indeed, if they have not profited by the lesson of 1885 to take the very plainly indicated measures necessary to ward off such danger.

SLANDER AGAINST A MEDICAL ASSISTANT.

AN assistant to a medical man has received £35 damages, after an appeal to the Queen's Bench Division, for slander. The slander consisted in a lady saying to another lady that the assistant had been divorced, and advising the said lady to ask the principal if it were so. The lady acted on this advice and saw the principal's wife. On hearing the gossip the assistant resigned, and his resignation was accepted. He commenced an action against the lady. The judge in the court of first instance (Nottingham) said the words were spoken of the plaintiff in his professional character; otherwise they would not have been actionable. The appeal judges took the same view, and confirmed the finding of the court below.

THE CONDITION OF THE RIVER LEA.

NO question of sanitation has a more vital importance than that which deals with the purity and cleanliness of the rivers in this country, and more especially with those in the immediate neighbourhood of vast cities. The subject is continually being rudely brought before the public either by outbreaks of epidemic diseases or through means of the susceptibilities of the organs of special sense. For some years a sanitary war has been waging between the various parties to whom the interests of what concerns the River Lea and the inhabitants on its banks respectively have been entrusted. The latest phase of the conflict is the appearance of the Tottenham Local Board of Health at the Edmonton Petty Sessions before the local justices, in answer to a summons issued at the instance of the Lea Conservancy Board. After hearing as much of the case as to leave but little doubt of the insanitary condition of the river below the Tottenham outfall, technical objections as to the non-responsibility of the Tottenham Board of Health were urged, and the Bench decided that the responsibility rested with the Joint Drainage Committee of the Tottenham

and Wood-green Local Boards. Having, then, this assurance, we hope speedily to see this joint committee spontaneously concerting measures to amend a state of matters which cannot but be a source of danger. Various methods for improving the river have been suggested, such as the thorough flushing of the river, the improvement of the subsoil and drainage, the purification of the sewage before it enters the stream, and finally that the deleterious liquid be kept out of the river altogether. The attempt at purification of sewage matter before allowing it to enter the river which was made by the Tottenham Local Board some years ago proved so abortive that within six months of its initiation Dr. Tripe said of the river that it had gone back almost to its former state, that within fifty yards of the outfall a specimen of the water contained one-third sewage. Surely no better illustration could be wanted to prove the truth of the statement that in sanitary matters the wisdom of yesterday is the folly of to-day. Mr. W. C. Young, analyst, in his evidence, characterised certain of the samples submitted to him as "extremely foul sewage which did not give evidence of having been treated in any way, very turbid, black, and having a most offensive odour." There can be no doubt, apart from the question of cost, that, as we have pointed out before, the obvious remedy is to make arrangements for preventing the sewage entering the river at all.

DETECTION OF TERPIN IN THE URINE.

M. LOISON has devised a simple plan for detecting terpin in the urine in very small quantity, based on the fact that this substance, when treated with hydrochloric acid, evolves a hydrocarbon which colours chloride of antimony red.

LIFE INSURANCE OF CHILDREN.

THE Bishop of Peterborough is to be congratulated on his success in obtaining the appointment of a select committee, with power to take evidence and report concerning child insurance. His eloquent advocacy of the cause he has taken up will, at any rate, result in an investigation of the subject; and, while we can scarcely approve the precise Bill which was read a second time in the House of Lords the other evening, it is a satisfaction to feel that the probability of further legislative restriction of child insurance is very considerably increased. The extension of the protected age of children with reference to insurance is undoubtedly desirable, but we doubt whether the reduction of the amounts for which insurance is permitted is sufficient to attain the object in view, and, as we recently stated, we doubt still more whether the proposal to pay all insurance money to the undertaker can be held to be satisfactory. The evidence to be taken before the select committee will, at any rate, afford the advocates of child insurance an opportunity for producing more conclusive statistical evidence than has yet been forthcoming of the assertion that the death-rate of insured children is far below the general death-rate of children at similar ages in England and Wales. The Bishop of Peterborough, in his speech in support of his Bill, pointed out that, if the published statistics were true, "they would prove that so healthy and invigorating was the process of insuring an unconscious child that the insured infant lived longer than the uninsured, and that the best treatment for a sick child, despaired of by the doctor, was to insure it." We have always felt that there must be some flaw in the published statistics of insured children, and we are glad to see the insurance companies challenged to produce further evidence in support of their assertions. We may also fairly expect statistical evidence from the General Register Office of the extent of child insurance in different parts of the country.

FOREIGN UNIVERSITY INTELLIGENCE.

Berlin.—Dr. Brieger has been promoted to be Extraordinary Professor of Medicine.

Constantinople.—Dr. Ismail Bessim has been appointed Assistant Professor of Anatomy.

Erlangen.—The number of students has this session exceeded 1000, the first time this has occurred. Of these, the Medical Faculty contains 340.

Lausanne.—The Medical Faculty is at last about to be established.

Marburg.—For the first time the number of students has exceeded 1000; 269 belong to the Medical Faculty.

Paris.—The total number of students in the six faculties is 10,000. Of these more than 1000 are foreigners. The number in the Medical Faculty is 729. A new scheme for preliminary medical education has been propounded by the Ministry of Education, upon which the different Faculties of Medicine have been invited to express an opinion. It consists essentially of the substitution for the present modified Bachelorship of Science, of a special *Baccalauréat*, comprising chemistry, physics, and natural history. The Paris Faculty seems disposed to accept the change.

Vienna.—The well-known surgeon, Professor von Dittel, has just celebrated the fiftieth anniversary of his taking his doctor's degree, receiving numerous ovations not only from students, but from persons of various classes.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.

THE deaths of the following distinguished members of the medical profession abroad have been announced:—Dr. E. Gräber, *privat-docent* in Medicine in Munich.—Dr. van der Burg, Professor of Pharmacy and Toxicology in the University of Leyden.

DR. VON NUSSBAUM, the distinguished Professor of Surgery, theoretical and clinical, in the University of Munich, having, at his own request, been relieved on grounds of health from the special work of the clinical ward and operating theatre, has received the Order of Merit of St. Michael of the Second Class, in recognition of his services as a teacher and man of science. Dr. Ottmar Angerer has been promoted Ordinary Professor of Surgery in the Medical Faculty, and Interim Lecturer and Operator in Clinical Surgery.

THE Italian Medical Association, which met at Rome in October last, under the presidency of Dr. Guido Baccelli, has just issued its official report of the proceedings. The volume—an octavo of 400 pages—is published by Vallardi of Milan; and its contents—which were summarised in THE LANCET—are of special interest, if only for the President's monograph, and the ensuing discussion, on "Malaria."

THE French Government has deputed Dr. Paul Thiéry to visit Scotland, Sweden and Norway, Denmark, and Russia, for the purpose of studying the organisation of surgical teaching and of seamen's hospitals.

THE Swiss State Council has unanimously adopted the decision of the National Council to organise a system of insurance against illness and accident by means of a Federal law.

SURGEON-MAJOR W. F. STEVENSON has been appointed Assistant Professor of Clinical and Military Medicine at the Army Medical School, Netley.

THE REPORT OF THE SECOND HYDERABAD CHLOROFORM COMMISSION.

IN presenting to our readers this week a selection of tracings from those obtained by the Second Hyderabad Commission, we think it may be well to bring shortly again to their notice the facts about this Commission. Its object was an essentially practical one, and could not be better defined than in the words of his Highness the Nizam himself, "to save people's lives." This object Surgeon-Major Lawrie hoped to attain by showing experimentally what he, in common with his teacher Syme and many others, had found clinically, that attention to the respiration was the safeguard against death during chloroform anæsthesia. At his suggestion, the First Hyderabad Commission was appointed by the Nizam's Government, but the results were so different from those obtained by many other experimenters that we hesitated to accept them when they were forwarded to us. At Dr. Lawrie's instance a Second Commission was appointed, and the Nizam generously forwarded to us £1000, with the request that THE LANCET would nominate an expert to assist in the investigation, and Dr. Lauder Brunton kindly acceded to our request to act as our representative. To take up the whole general action of anæsthetics, although interesting, would have occupied more time than the Commission had at its disposal, and consequently it restricted its experiments to those having a direct practical bearing.

In a subject of such vital interest as the mode of action of anæsthetics it is important that no conclusion should be accepted without the most thorough criticism, and it is with the view of enabling our readers to draw their own conclusions from the experiments of the Second Hyderabad Commission that we present them with a selection from the tracings obtained. Nearly 600 experiments in all were performed by this Commission, about 150 of them being blood-pressure, and each blood-pressure, as a rule, involving three or four tracings or more. Out of the total number of tracings, amounting to 400 or 500, we now select 32 in order to illustrate some of the most important points.

The facts on which the Commission lay most stress are that when chloroform is given to animals by inhalation, in the same way as it is given to patients during operations, the respiration invariably stops before the heart, and if the administration of the anæsthetic be stopped and artificial respiration be begun as soon as natural breathing ceases, life can invariably be restored. The great slowing of the heart's action which has been observed, more especially by the Committee of the British Medical Association, and which has been regarded as due to the action of chloroform, the Hyderabad Commission regard as due to asphyxia, inasmuch as they entirely failed to obtain this tracing by giving chloroform with free admixture of air, but were able to obtain it at will by simple obstruction of the animal's respiration. Moreover, instead of looking at this slowing of the heart's action as a cause of danger, the Commission regard it rather as a means of safety, preventing the anæsthetic from being carried too rapidly from the lungs to the nerve centres. From the observations made by the Commission there seems to be little doubt that while chloroform given with a free supply of air by inhalation does not paralyse the heart directly, yet that asphyxia with chloroform is very dangerous, and generally causes the heart to stop much more quickly than asphyxia alone would do, although to this rule there may be exceptions.

The influence of shock was very fully tested by the Commission, as will be seen from Experiments 79 and 185. It was found to be very much less than what might have been expected. These experiments are no doubt open to the objection that the operations intended to produce shock were not performed at the time when sudden death from shock is said to be most likely to occur—viz., at the very beginning of the operation before any anæsthetic had been given at all, but were done after the animal had first of all been thoroughly anæsthetised, and had only partially recovered from the anæsthesia. Of this objection the Commission took full cognisance, but decided not to perform operations before anæsthetics had been given, because animals are less liable to shock than man on account of their lower mental development, and the chance of obtaining evidence of shock seemed too small to justify the infliction of the pain which would necessarily have been entailed by operating without chloroform.

In THE LANCET of Sept. 21st, 1889, we indicated that difference of temperature might have something to do with the varying results obtained at Hyderabad and elsewhere, and the Commission consequently noted the temperature of the room as well as of the animal in most of their experiments. The effect of chloroform upon animals with a fatty heart was ascertained by administering phosphorus to the animals previously, so that their organs became fatty; but, as will be seen from Experiment 79, the effect was less marked than might have been anticipated.

The lamentable case of death from the combined influence of nitrous oxide and tight-lacing which occurred in Edinburgh last autumn shortly before the Second Hyderabad Commission began their work induced them to test the effect of tight-lacing in monkeys subjected to the action of chloroform. It will be seen that death occurred rapidly. No doubt this might readily have been anticipated, and the Commission no doubt would not have tried the experiment had not the death of the unfortunate lady shortly before shown that the danger of tight-lacing when taking an anæsthetic was not sufficiently appreciated. These experiments of the Commission have caused much remark by many of our lay contemporaries, who did not seem to understand that their object had nothing to do with tight-lacing in general, but simply with tight-lacing as affecting the action of anæsthetics.

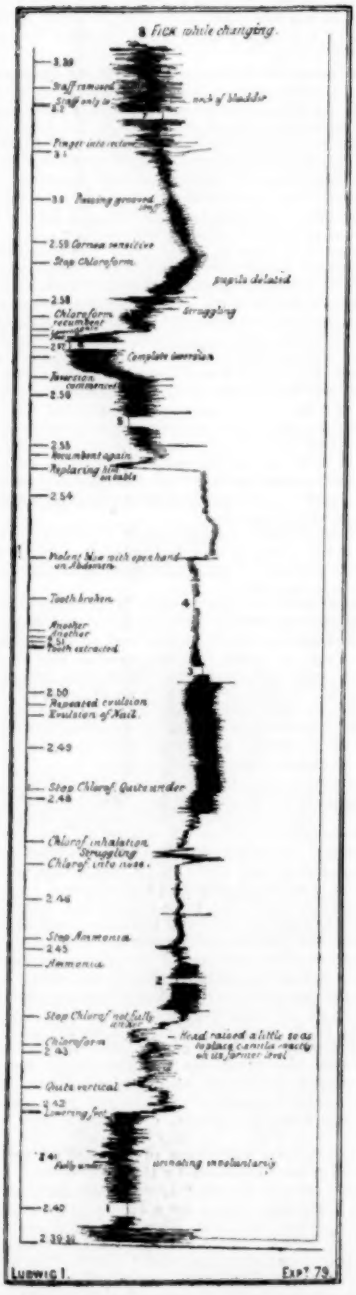
As we have already pointed out, a question of such importance is not likely to be finally settled either by clinical observation alone or experiment upon animals alone; the two must be combined.

The experiments of the Second Hyderabad Commission have supplied us with a mass of experimental data such as has never been obtained before, and is not likely to be obtained again, at least for many years; but in order to have this supplemented from the clinical side, we issued with THE LANCET of March 15th a form of inquiry regarding deaths from anæsthetics, which we trust that our readers will fill up and return as soon as possible, and that they will also aid us in our work by obtaining answers from as many trustworthy persons as they can.

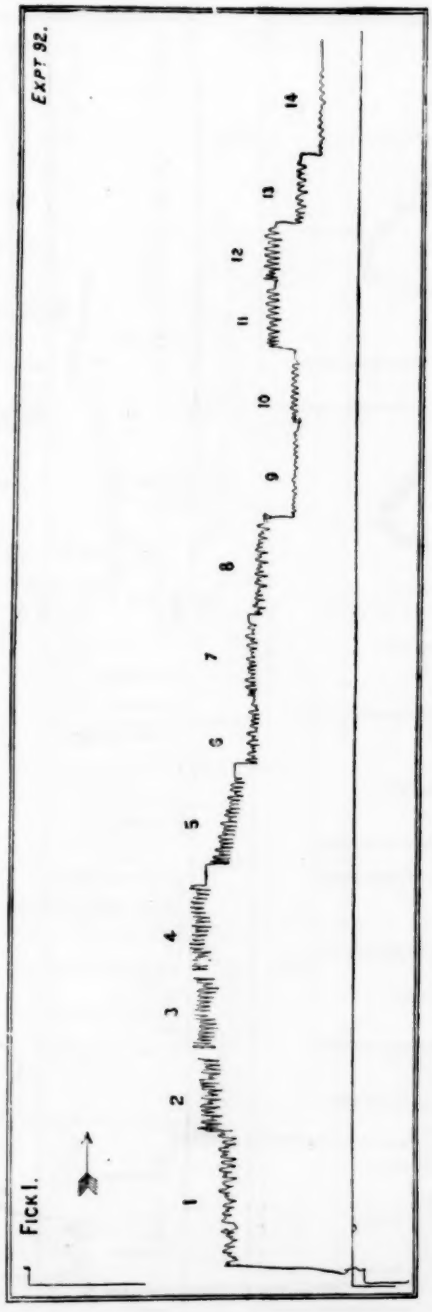
By combining the experimental and clinical data we trust that we shall be able to set finally at rest the vexed question of how death occurs during anæsthesia, and thus "to save people's lives," as the object of the Commission was expressed by the enlightened ruler to whose generosity, backed by the public spirit of his ministers, we owe the establishment of the Hyderabad Commissions.

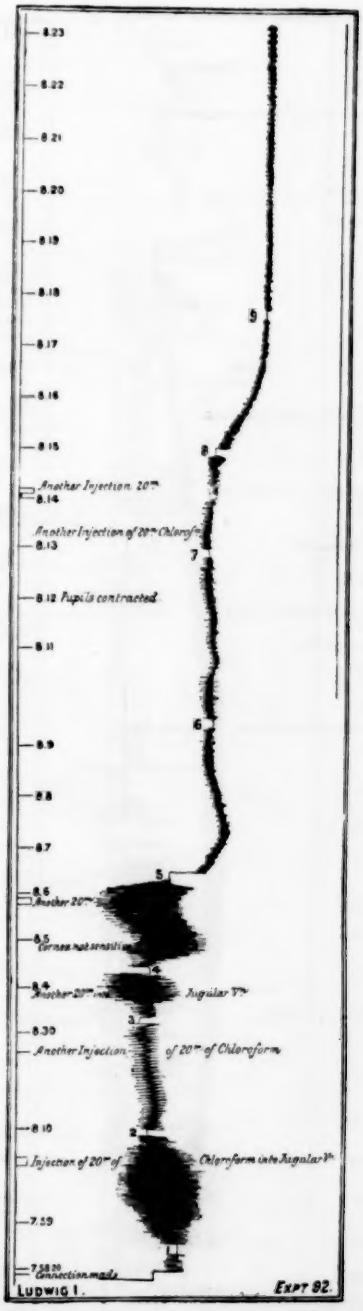
The tracings which we have reproduced were taken by connecting the carotid artery of the animal with a mercurial manometer, the float of which ascended and descended with every rise or fall in the arterial pressure, and traced upon the slowly revolving cylinder blackened with soot the variations of the pressure upon the arterial system. As the revolutions of the cylinder were too slow to allow of the individual pulse beats being seen, a second cylinder was employed which revolved at a speed nearly ten times as great as the first; by using a wide tube, either limb of which could be shut off or opened at leisure, both manometers could either be put into communication at once with the artery, or a single one could be connected at a time. Usually only one was thus connected; the general variations of the arterial pressure are shown in the tracing taken by the Ludwig's or mercurial kymograph, termed shortly "Ludwig" in the tracings, and the pulse beats were taken by a Fick's kymograph on the quickly revolving cylinder. These tracings are indicated by the word "Fick" in the corner. In the tracings taken by Ludwig's manometer a straight line will be found here and there in place of the usual curve. These lines indicate the points where the Fick's kymograph was connected with the artery in place of Ludwig's. Each is numbered, and by reference to the corresponding tracings by Fick's kymograph the character and rate of the pulse at any of these periods can be readily ascertained.

NOVEMBER 12TH. — EXPERIMENT 79.

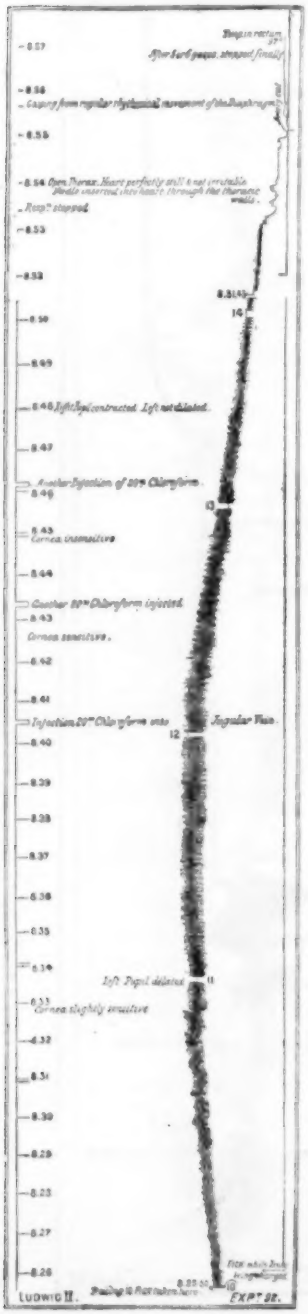

Struggling
Complete insensibility
Struggling
Struggling
Struggling

NOVEMBER 18TH. — EXPERIMENT 92.

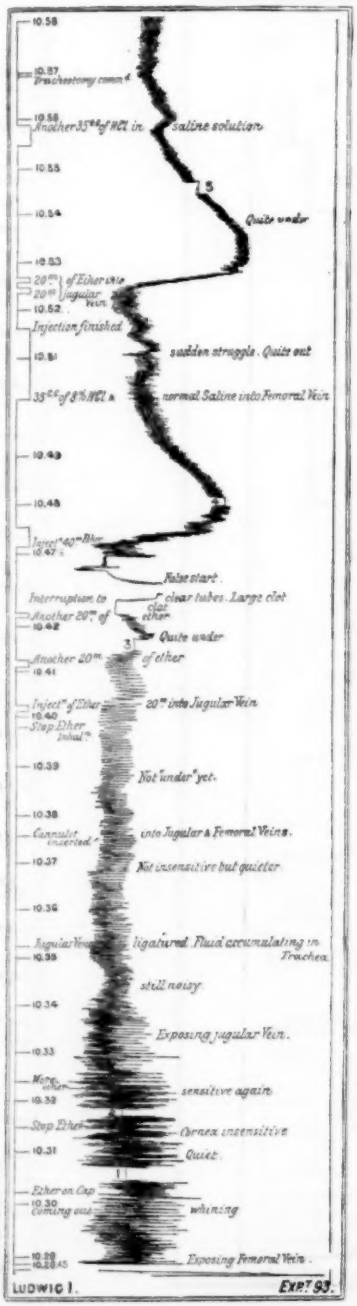


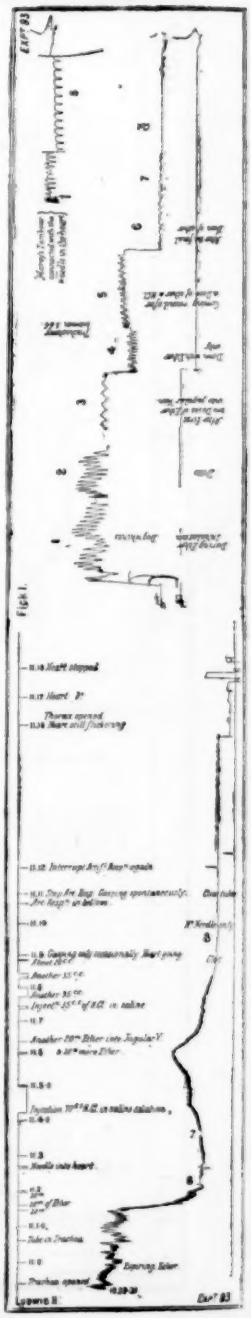


EXPERIMENT 92 (*continued*).

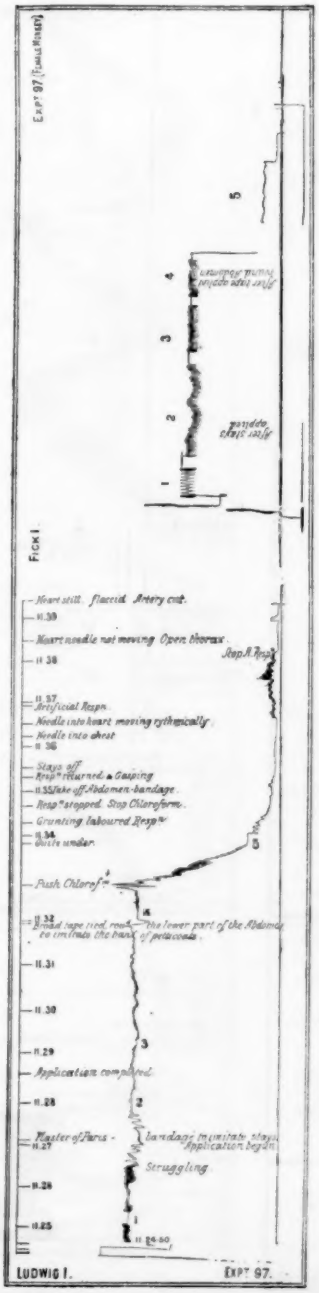


NOVEMBER 18TH. — EXPERIMENT 93.

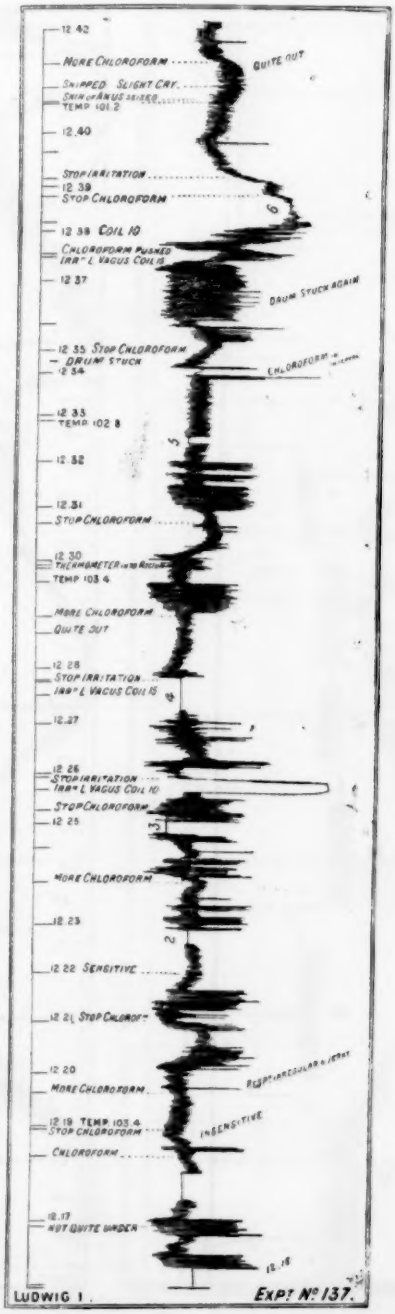




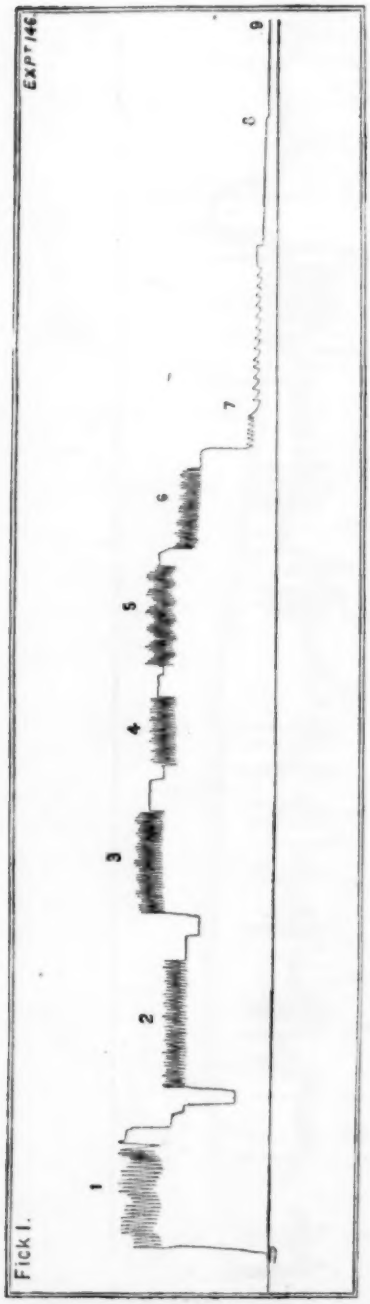
NOVEMBER 19TH. — EXPERIMENT 97.

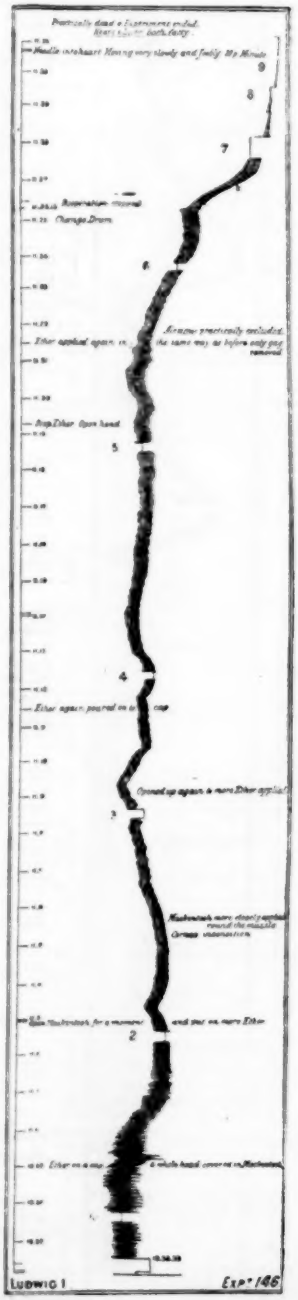


NOVEMBER 28TH. — EXPERIMENT 137.

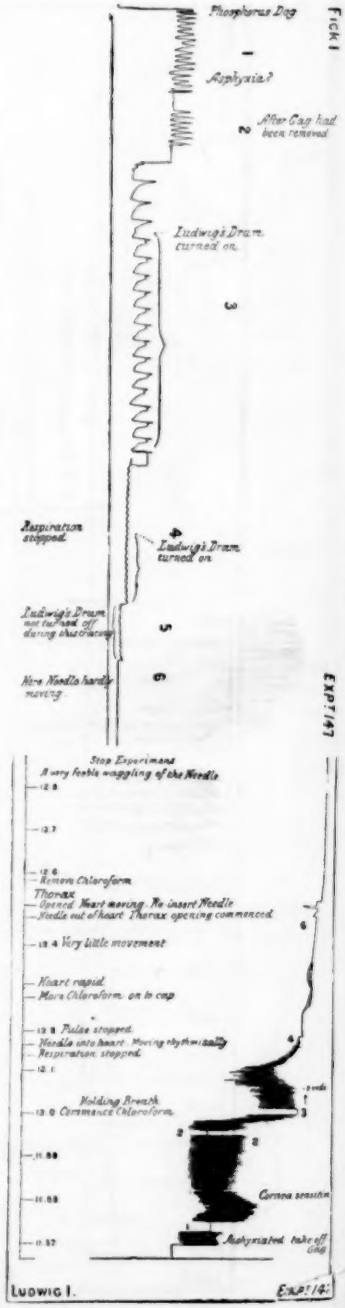


NOVEMBER 30TH. — EXPERIMENT 146.

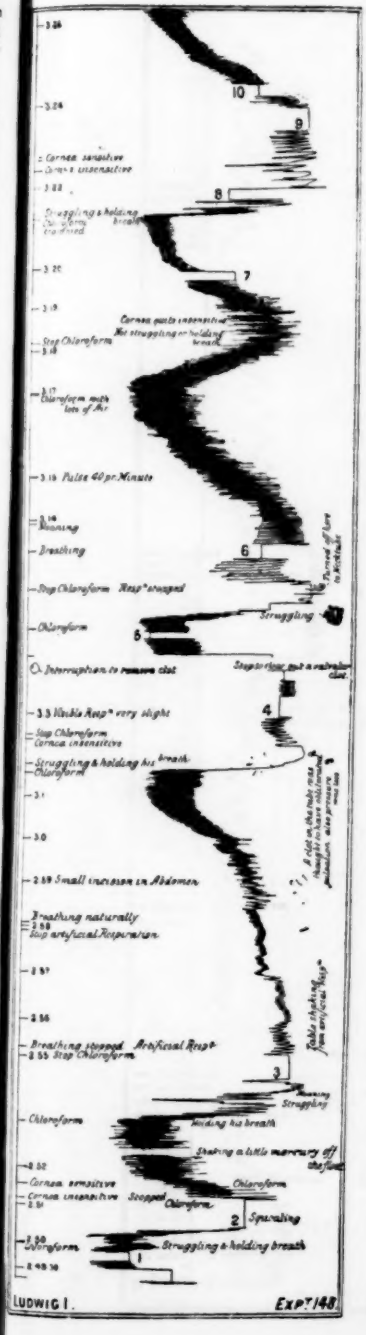


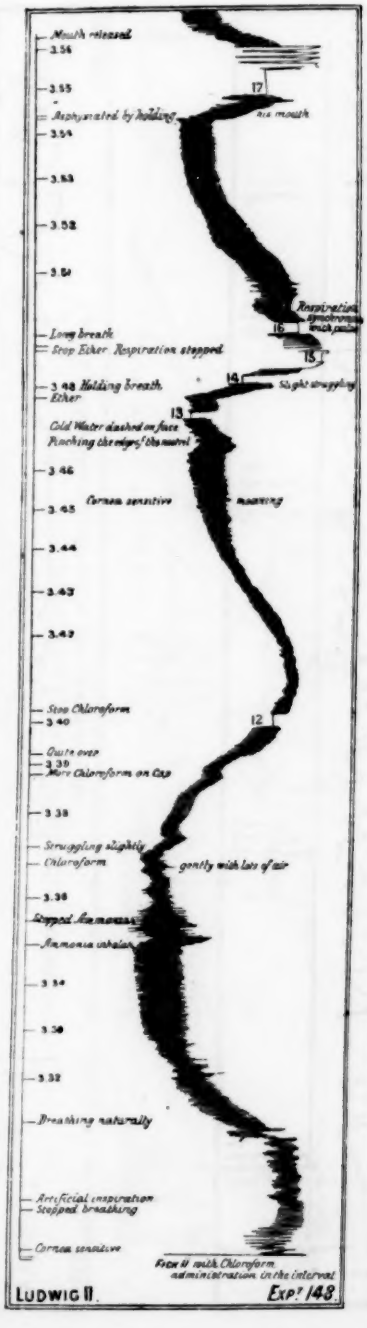

Needle into heart. Moving very slowly and feebly. 10 Minutes
Respiration stopped
Thorax
Ether again poured on to cap
Opened up again & more Ether applied
Needle out of heart
Thorax opening commenced
Ether on & cap
Whole head covered in Mackintosh
LUDWIG I
EXPT 146

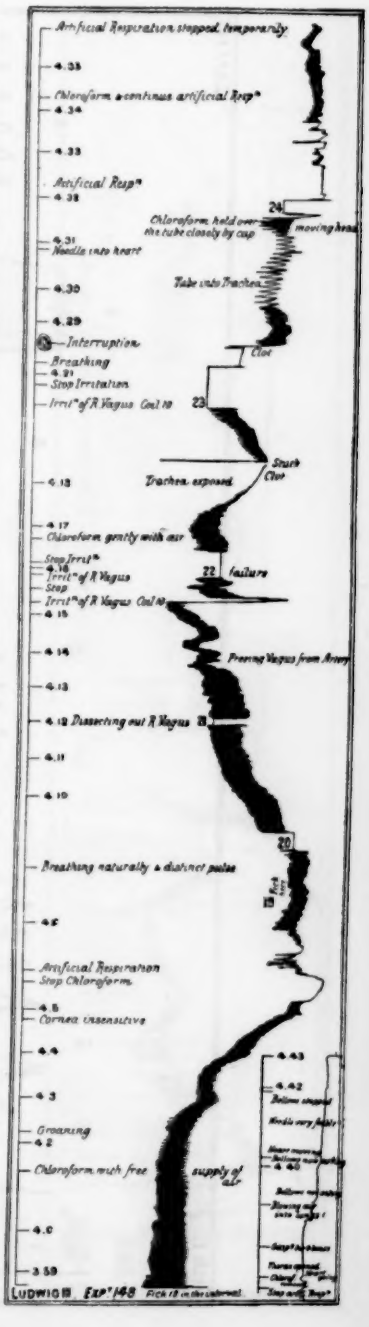
NOV. 30TH. — EXPERIMENT 147.



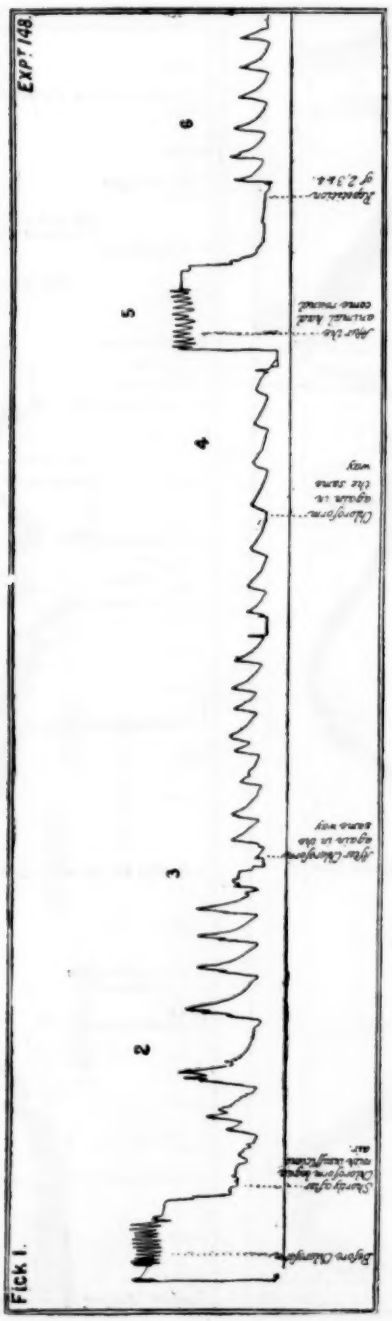
NOVEMBER 30TH. — EXPERIMENT 148.

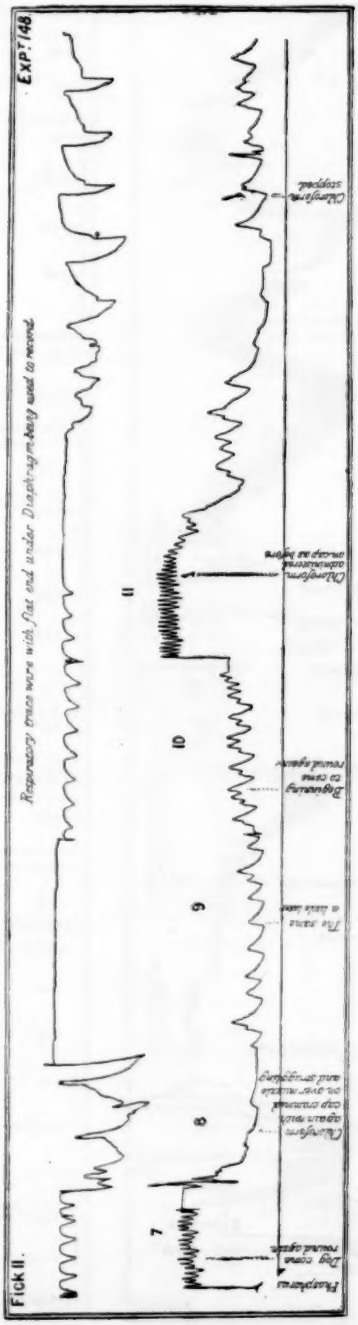






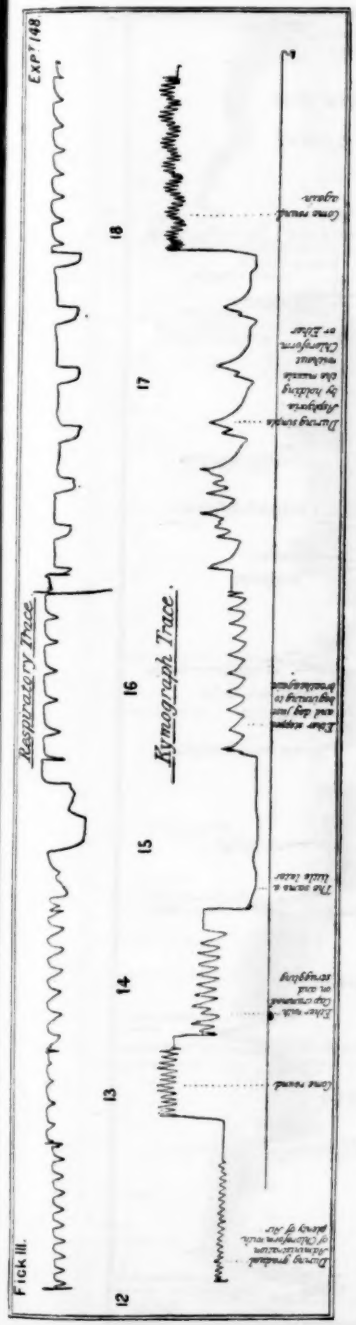
EXPERIMENT 148 (*continued*).

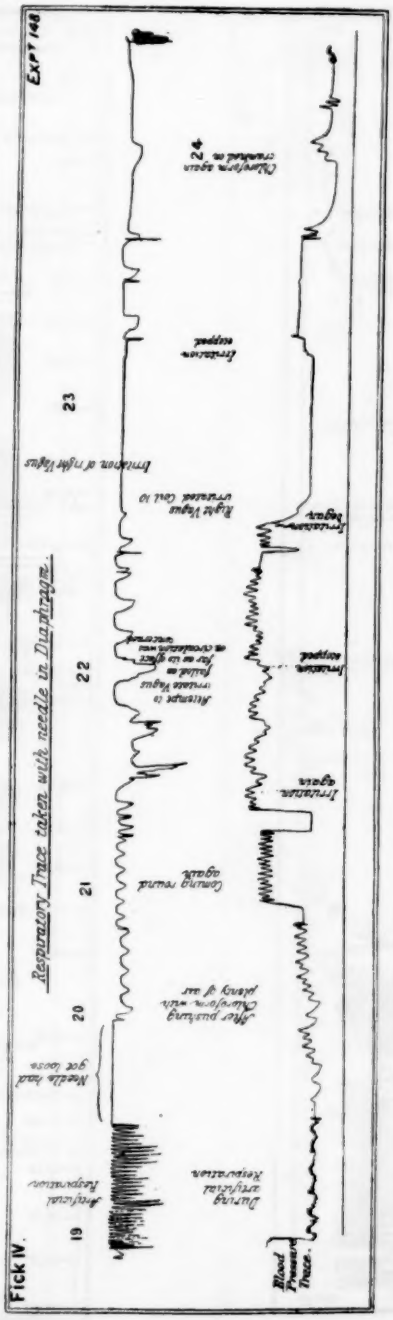


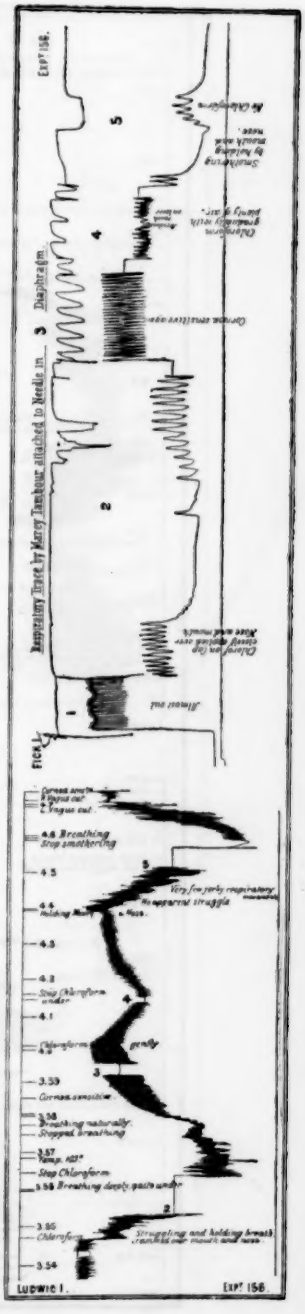


EXPERIMENT 148 (*continued*).

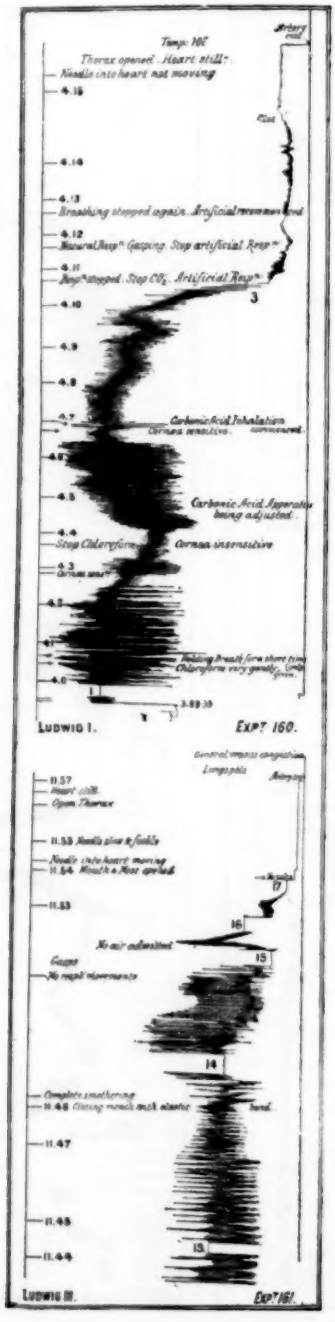
DEC. 3.—EXPERIMENT 156.



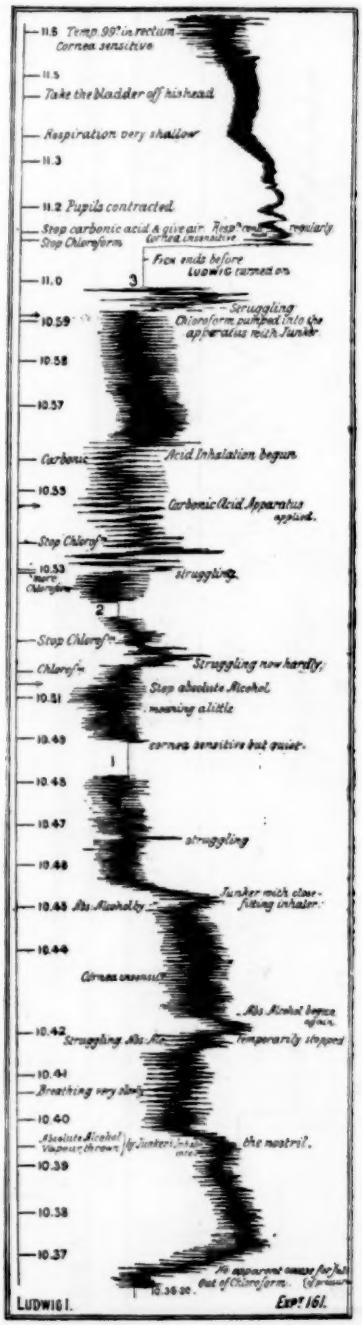




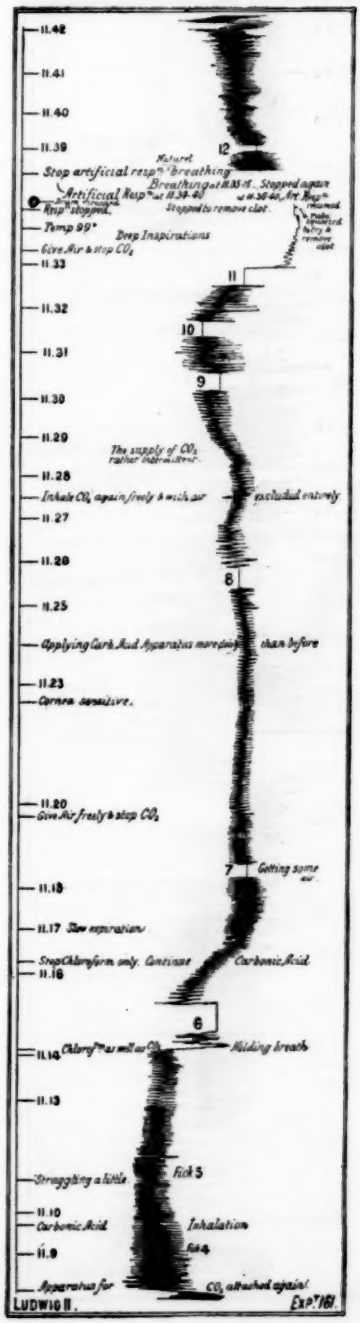
DEC. 4TH.—EXP. 160. DEC. 6TH.—EXP. 161.

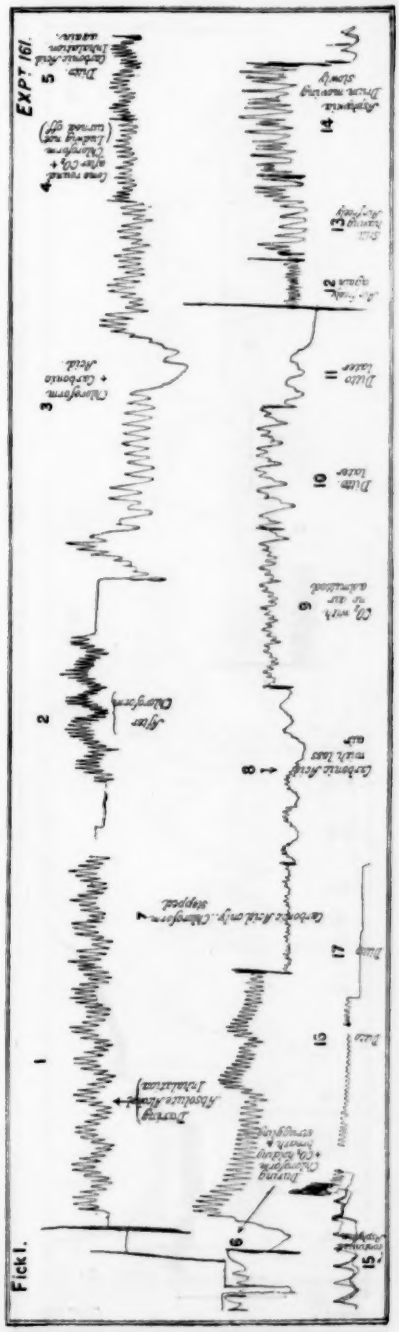


EXPERIMENT 161 (*continued*).

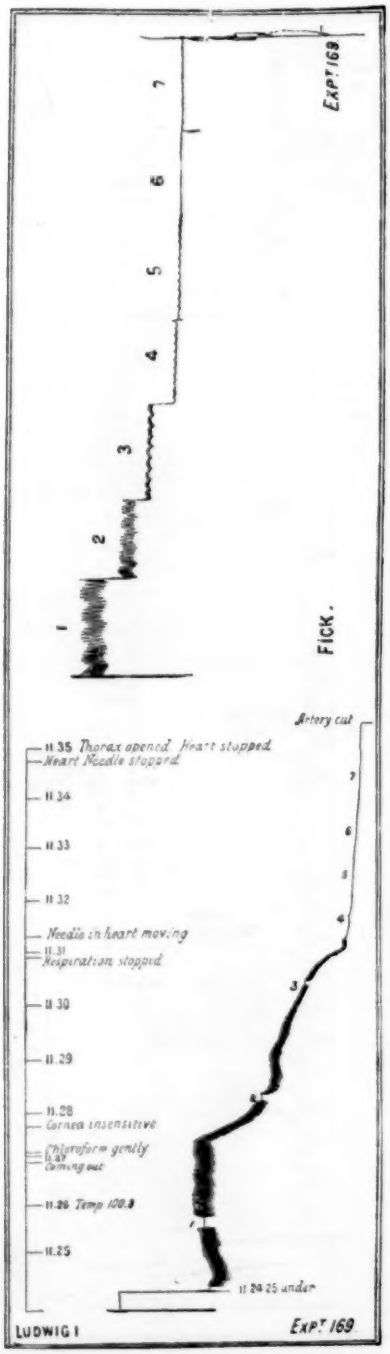


EXPERIMENT 161 (*continued*).

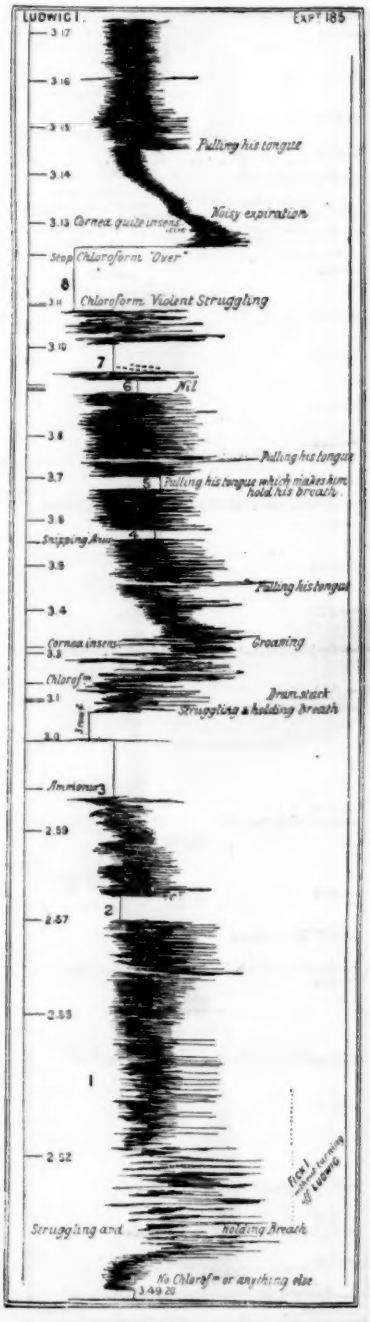




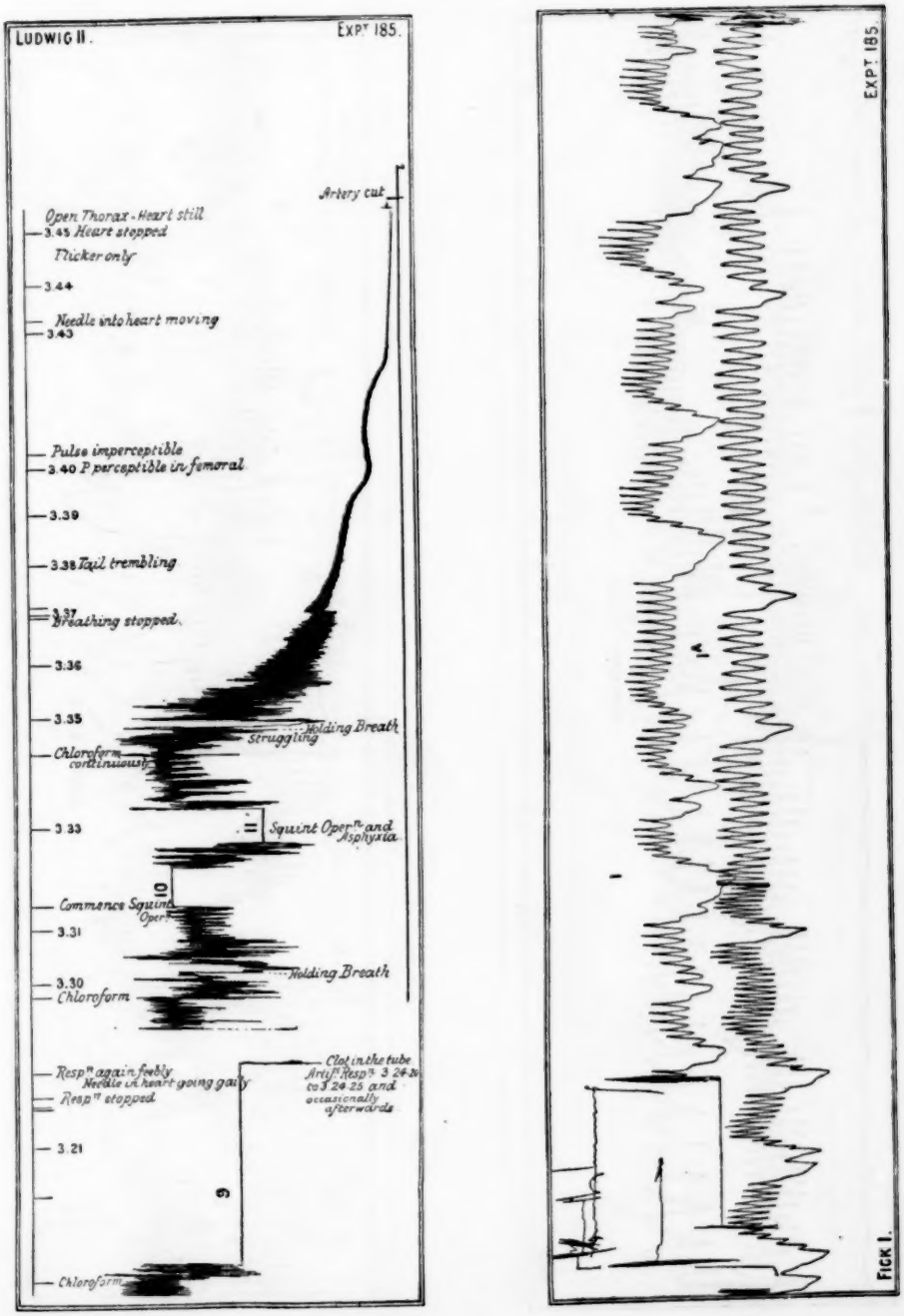
DECEMBER 9TH. — EXPERIMENT 169.



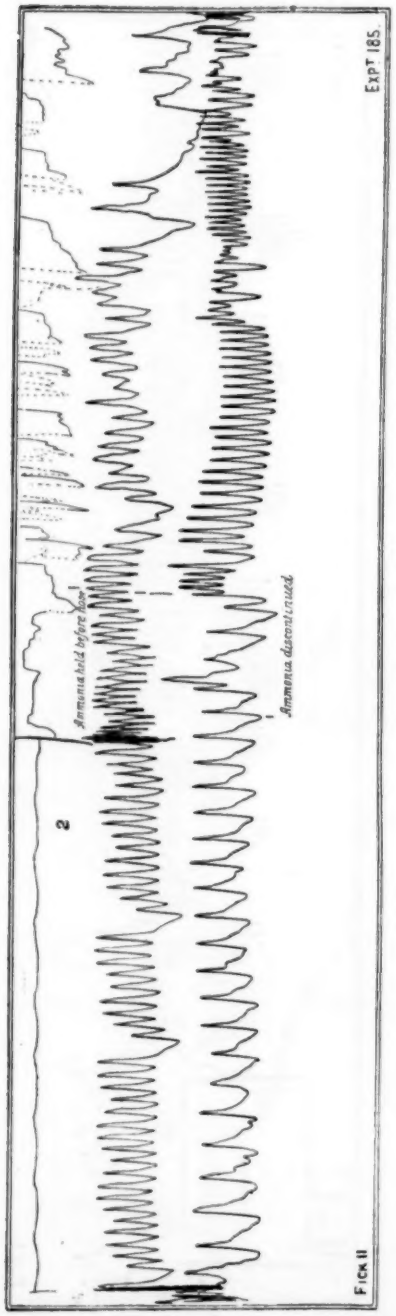
DECEMBER 16TH. — EXPERIMENT 185.

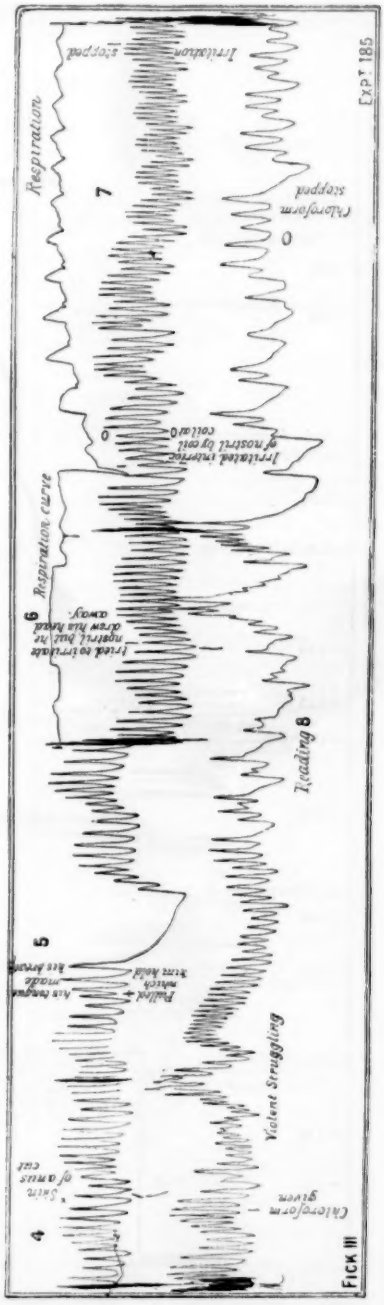


EXPERIMENT 185 (*continued*).

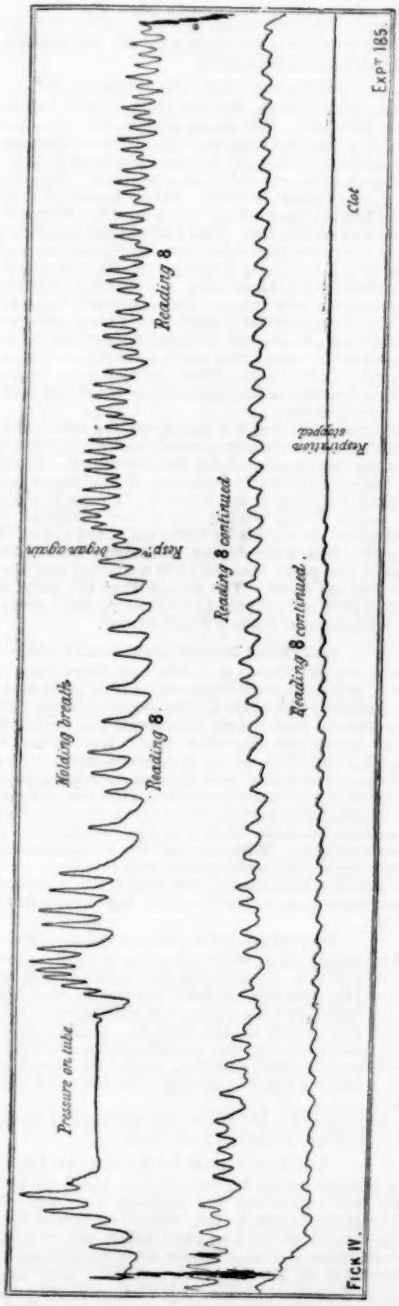


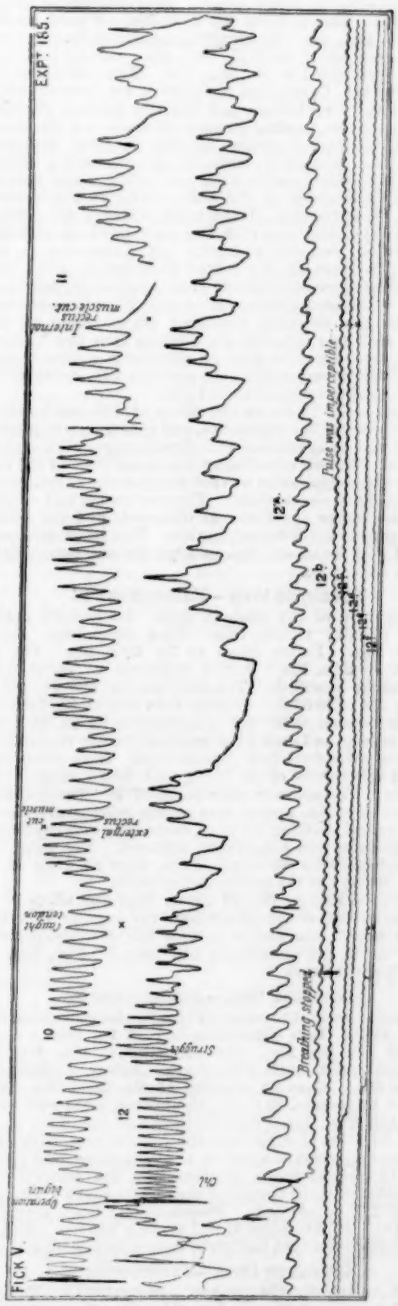
EXPERIMENT 185 (*continued*).





EXPERIMENT 185 (*continued*).





DESCRIPTION AND REMARKS.

NOVEMBER 12TH.—EXPERIMENT 79.

GOOD-SIZED pariah, weight 33lb., that has had two doses of phosphorus—one yesterday, the other to-day, each 1-16th of a box of James's beetle paste. Into chloroform box at 2h. 9m. 34s. Fallen down 2h. 23m. 39s. Placed on the table at 2h. 24m. 26s. Respiration stopped at 2h. 24m. 45s. Artificial respiration until 2h. 27m. 39s. Artery ligatured and cannula inserted at 2h. 36m. 13s. Temperature in the rectum 100° F. Connexion made with the manometer at 2h. 39m. 30s. Two Ludwig and one Fick tracings during—(*a*) Change to the vertical position of the body; (*b*) chloroform administration while in the vertical position; (*c*) ammonia inhalation while in the vertical position; (*d*) squirting chloroform into the nose while in the vertical position; (*e*) evulsion of the nails while in the vertical position; (*f*) extraction of the teeth while in the vertical position; (*g*) violent slap with the open hand on abdomen while in the vertical position; (*h*) restoration to the recumbent position on the table; (*i*) inversion of the body so that the dog was completely head downwards, and again lowering to the recumbent position; (*j*) chloroform administration in the ordinary position; (*k*) attempts to pass grooved staff and Thompson's dilators into the bladder; (*l*) slitting prepuce; (*m*) pushing chloroform carelessly until after respiration had ceased; temperature after death 99° F.; the organs did not appear to be fatty.

Remarks.—No. 79 shows the effects of different positions of the body on the blood-pressure, and of attempts to produce shock by various operations in different stages of chloroform inhalation. In this experiment the exact time of the final stoppage of the respiration was not noted, as the chloroformist was watching the operations. The respiration had stopped some time before the fact was observed, and the animal died in spite of artificial respiration. The heart continued to beat feebly for seven minutes after the commencement of artificial respiration.

NOVEMBER 18TH.—EXPERIMENT 92.

Temperature of the room 23° cent. Large-sized pariah. Weight 33½ lb., rather thin. Into chloroform box at 7h. 24m. 43s. Fallen down at 7h. 28m. 53s. On the table at 7h. 29m. 37s. Artery ligatured at 7h. 41m. 8s., and cannula inserted. Temperature in the rectum at 7h. 42m. 30s., 100·6° F. Jugular vein tied at 7h. 51m. 47s. Connexion made with the manometers at 7h. 58m 20s. Three Ludwig and one Fick tracings during repeated injections of chloroform into jugular vein. Nine doses were given in the course of an hour, and death ensued very gradually. Temperature after death 97° F. Post-mortem: After the chest was opened five or six regular movements of opening and shutting the jaws, coincident with rhythmical contractions of the diaphragm, occurred. The heart was quite still in all its cavities. There were no clots in the heart. No sign of the needle in the heart.

Remarks.—Tracing No. 92 shows that the effect of repeated injections of chloroform into the jugular vein is to produce anæsthesia and a gradual fall of blood-pressure, exactly as if the chloroform had been inhaled, and not to paralyse the heart.

NOVEMBER 18TH.—EXPERIMENT 93.

Temperature of the room 24° cent. Large pariah dog; weight 33½lb. Into chloroform box at 9h. 59m. Fallen down at 10h. 5m. 25s. On the table at 10h. 8m. 27s., and kept quiet with chloroform. Artery ligatured at 8h. 20m. 50s. Cannula inserted at 8h. 22m. 22s. Temperature in rectum, 99·8° F. Connexion made with manometer, 10h. 28m. 45s. Two Ludwig and one Fick tracing during injection of ether into the jugular vein, with at the same time injection of solution of hydrochloric acid (0·8 per cent.) in normal saline solution into the femoral vein. Notice also effect of thrusting needle into heart. Temperature 101·2° F. after death. Post-mortem: heart very much distended. Right ventricle full of clot; left free. Superior and inferior vena cava and pulmonary artery filled with clot.

NOVEMBER 19TH.—EXPERIMENT 97.

Medium-sized female monkey. Weight 9¾lb. Temperature of the room 23½° cent. Into chloroform box at 10h. 50m. Fallen down at 10h. 58m. 30s., and placed on the table Temperature in rectum 102·4° F. Artery ligatured at 11h. 11m. 10s. and cannula inserted. Connexion made with manometers at 11h. 24m. 50s. One Ludwig and one Fick tracings during—(*a*) Struggling; (*b*) application of a plaster-of-Paris bandage to the chest to imitate stays, and (*c*) a tight broad tape round the lower part of the abdomen to imitate the effect of petticoats; (*d*) pushing chloroform until respiration stopped. Death ensued although the bandages were quickly removed, and in spite of artificial respiration. Post-mortem: Blood arterial in left side of heart. Temperature after death 102·4° F.

Remarks.—No. 97 shows the evil effects of interference with the respiration by pressure on the chest and abdomen during chloroform inhalation.

NOVEMBER 28TH.—EXPERIMENT 137.

Goat, young male. Weight 15¾lb. Into chloroform box at 11h. 46m. 43s. Fell down at 12h. 2m. 30s., and taken out of box, but still quite sensitive. More chloroform from time to time to keep it under. Holds its breath like the other goat whenever chloroform is given. Temperature in rectum at 12h. 8m. 103·6° F. Artery ligatured at 12h. 11m. 15s. Cannula inserted at 12h. 12m. 50s. Connexion with manometer at 12h. 16m. Two Ludwig and one Fick tracings during—(*a*) Ordinary chloroform administration, with irregular respiration. (*b*) Irritation of the left vagus nerve. No pulsation for 17 seconds. (*c*) Pushing chloroform and irritating the left vagus. Pulse reduced from 80 to 20. (*d*) The same, only for a much longer time, after which the animal died in spite of artificial respiration, which, however, for some reason was never efficient, no air passing in and out of the chest. Pulse reduced from 80 to 48. On opening the chest a large quantity of blood was found in the left pleural cavity.

Remarks.—Tracing No. 137 shows the effect of irregular breathing in chloroform administration, causing a corresponding irregularity of the blood-pressure. It also shows the effect of electrical irritation of the vagus, producing complete stoppage of the heart for 17 seconds without any bad result. This tracing shows the safeguard effect of slowing the circulation by irritation of the vagus. The first time this was done during chloroform administration it reduced the pulse from 80 to 20 a minute, and the chloroform had no effect. The second time the pulse was only reduced from 80 to 48; the chloroform inhalation was kept up much longer, and gradual death ensued.

NOVEMBER 30TH.—EXPERIMENT 146.

Dog, weight 35 lb, that has had three doses of phosphorus, one grain each day, on the 25th, 26th, and 27th instant respectively. Of twelve dogs similarly dosed, four have already died. Into chloroform box at 10h. 27m. 50s. Fallen down at 10h. 32m. 25s. On to the table at 10h. 33m. 15s., and given chloroform from time to time. Left carotid ligatured and cannula inserted into it. Connexion with manometers at 10h 56m. 35s. Two Ludwig and one Fick tracings during administration of ether persistently, with more or less perfect exclusion of air, until death resulted. Both sides of the heart distended with venous blood. Heart and liver both fatty.

Remarks.—Experiment 146 shows the effects of ether administered, so as to more or less completely exclude the air.

NOVEMBER 30TH.—EXPEERIMENT 147.

Another pariah to whom phosphorus has been given, as in the case of 146. Is, however, more sickly. Into chloroform box at 11h. 32m. 57s. Fallen down at 11h. 40m. 41s. Placed on the table and kept quiet with chloroform. Cannula inserted into artery at 11h. 51m. 7s. One Ludwig and one Fick tracings during the administration of chloroform persistently until death resulted. At the commencement there was a sudden fall of pressure, the result of holding the breath.

Remarks.—No. 147 shows the effects of ordinary chloroform administration and poisoning.

NOVEMBER 30TH —EXPERIMENT 148.

A thin phosporus dog of the same batch as 146 and 147. (Has had chloroform this morning, but was revived by artificial respiration.) Into chloroform box at 2h. 30m. 37s. Fallen down at 2h. 40m, and taken out of box. Placed on the table and kept under with chloroform. Artificial respiration at 2h. 42m. 20s. until 2h. 42m. 50s. Artery ligatured and cannula inserted. Connexion with manometers at 2h. 49m. 50s. Three Ludwig and four Fick tracings showing the effect of (*a*) giving chloroform on a cap crammed on closely over the face so as to partially asphyxiate the animal compared with the gradual fall of pressure that occurs when chloroform is properly administered with air,

(*b*) giving ether in the same way, (*c*) giving ammonia in the same way, and (*d*) holding the dog's mouth and nose so as to produce asphyxia without chloroform or ether, (*e*) irritation of the right vagus. The dog was eventually killed by making him inhale concentrated chloroform vapour through a tube tied into the inhaler.

Remarks.—Experiment 148, Ludwig I., II., III., and Fick I., II., III., IV., shows the difference between chloroform administration (*a*) when the respiration is embarrassed by struggling and holding the breath consequent on the attempt to make the animal inhale unduly strong vapour, and (*b*) when chloroform vapour is diluted and the respiration is natural and free. If Ludwig I. and Fick I. and II. are carefully examined, it will be found that every time chloroform is given with insufficient air so as to cause the animal to hold its breath and struggle from asphyxia, irregularity of the blood-pressure was produced, which recurred when the animal was recovering. This corresponds exactly with the irregularity in the Glasgow traces A, B, &c. on the one hand, and on the other in the irregularity caused by artificial stimulation of the vagus. With reference to this point, compare traces 137, Ludwig I., between 12 25 and 12.26, with trace 148 Ludwig I, between 3 1 and 3 3. It was in experiment 148 that the Commission first became fully aware of the vital importance of natural respiration in chloroform administration. The tracings show that even the slightest struggling (*vide* Ludwig II., 3.36 to 3.39), or interference with respiration (*vide* Ludwig III., 4 2 to 4 5) caused a corresponding irregularity in the blood-pressure. But whenever the chloroform was given so that the respiration was natural the blood-pressure was perfectly regular, as is seen in Ludwig I. at 3 17 and Fick III., reading 12. The tracings of Experiment 148 also show the effects of simple asphyxia and of electrical irritation of the vagus for 20 seconds (*vide* Fick IV., reading 23).

DECEMBER 3RD.—EXPERIMENT 156.

Weight 27¾lb. A large pariah that had two grains of phosphorus this morning. Into chloroform box at 3h. 26m. 30s. Fallen down at 3h. 39m. 35s, and placed on the board at 3h. 40m. 10s. Artery ligatured at 3h. 46m. 50s., and cannula inserted at 3h. 48m. Loop under both vagi. Connexion made with manometer at 3h. 51m. 7s. One Ludwig and two Fick tracings during (*a*) administration of chloroform with a cap closely applied to the muzzle (Fick 2 shows the extreme depression of the heart's action); (*b*) gradual administration of chloroform with plenty of air; (*c*) simple smothering without chloroform by holding the mouth and nose (compare Fick reading 5 with 2); (*d*) division of both vagi; (*e*) simple smothering again (compare the extremely rapid pulse in Fick 7 with that of Fick 5); (*f*) chloroform again, with the cap closely applied, and while the pulse was still extremely rapid (compare No. 151); the pressure fell rapidly, and after the chloroform was stopped the animal gave two or three convulsive gasps in rapid succession, which had no effect on the pressure; (*g*) artificial respiration failed to restore the animal, and the heart stopped beating about six minutes after the last gasp. Temperature 101 4° F. Thorax opened at 4h. 23m. Heart quite still, but irritable.

DECEMBER 4TH.—EXPERIMENT 160.

Pariah dog, weight 24lb.; has had two grains of phosphorus, as in 159. Into chloroform box at 3h. 38m. 24s. Fallen down at 3h. 49m. 20s. Placed on the table at once. Cannula inserted into the left carotid at 3h. 55m. 45s. Connexion with manometer at 3h. 59m. 30s. One Ludwig tracing only. Chloroform was given at first very gently, with plenty of air until the animal was fully under. The animal's head was then placed in a bladder which communicated with an apparatus (described in Appendix) for generating carbonic acid as soon as the cornea became sensitive. Carbonic acid was generated, and the inhalation of this gas commenced. Blood-pressure fell slowly at first, but afterwards more rapidly. After three minutes and three-quarters the respiration stopped, and the bladder was at once taken off the dog's head and air freely admitted while artificial respiration was commenced. Gasping respiratory movements occurred after about a minute, but had little or no effect upon the blood-pressure, and ceased finally after another minute. Artificial respiration was resumed, but without avail. The liver was not apparently fatty.

DECEMBER 6TH.—EXPERIMENT 161.

Temperature of the room 20° cent. Large pariah, weight 26lb., that has had three grains of phosphorus in one-grain daily doses, but is not particularly sick, though out of a batch of seven, of which he is one, that were dosed with phosphorus in the same way three died in the course of the day. Into chloroform box at 10h. 11m. 20s. More chloroform into the box at 10h. 17m. 40s. Fallen down at 10h. 22m. 40s. Placed on the table at 10h. 23m. 25s. Slight convulsions at 10h. 25m., after which the breath was held for about half a minute, and artificial respiration was employed for a few seconds. More chloroform at 10h. 25m. 55s., as the animal was sensitive and groaning. Temperature in the rectum 100·4° F. Chloroform stopped again at 10h. 27m. 50s. More chloroform at 10h. 29m. 25s. Artery ligatured at 10h. 30m. Stop chloroform again at 10h. 30m. 10s. Cannula inserted at 10h. 31m. 52s. More chloroform at 10h. 33m. 50s. until 10h. 34m. 30s. More chloroform again at 10h. 34m. 40s. Stop chloroform at 10h. 35m. 20s. Connexion made with manometer at 10h. 36m. 30s. Three Ludwig and two Fick tracings during: (*a*) administration of absolute alcohol by Junker's inhaler, the tube introduced into the nostril (the pressure in this animal fell in a marked way whenever he struggled); (*b*) absolute alcohol continued, but close-fitting inhaler used in place of the tube in the nostril; (*c*) chloroform administration with struggling; (*d*) inhalation of carbonic acid, and; (*e*) chloroform at the same time (*vide* especially Fick reading 3); (*f*) carbonic acid inhalation again (after giving fresh air) and for short time chloroform as well (Fick 6); (*g*) carbonic acid inhalation again, with more careful exclusion of air; (*h*) after the carbonic acid was stopped he breathed spontaneously for a short time, but then artificial respiration became necessary at intervals; (*i*) lastly, smothering, by bandaging mouth and nose with an elastic band until he died.

DECEMBER 9TH.—EXPERIMENT 169.

Dog, 37¾ lb. Given chloroform at 11h. 12m. 30s. Fallen down at 11h. 15m. 55s. Placed on the table at 11h. 16m. 10s. More chloroform given 11h. 17m. 47s. Stopped at 11h. 18m. 25s. More chloroform at 11h. 19m. 5s. Artery ligatured at 11h. 19m. 55s. Stopped chloroform at 11h. 21m. 5s. Cannula inserted at 11h. 21m. 21s. More chloroform at 11h. 22m. 35s. Stopped chloroform at 11h. 23m. 10s. Connexion with manometer at 11h. 24m. 25s. One Ludwig and part of a Fick tracing during continued gentle administration of chloroform until death.

Remarks.—No. 169 is a good example of the most important point brought out by the experiments of the Commission. Whenever chloroform is properly administered the blood-pressure invariably falls gradually and regularly, as is shown in the Ludwig and Fick tracings of Experiment 169; and the fall of pressure is in no sense dangerous if the inhalation is stopped when the subject is fully under the influence of the anæsthetic.

DECEMBER 16TH.—EXPERIMENT 185.

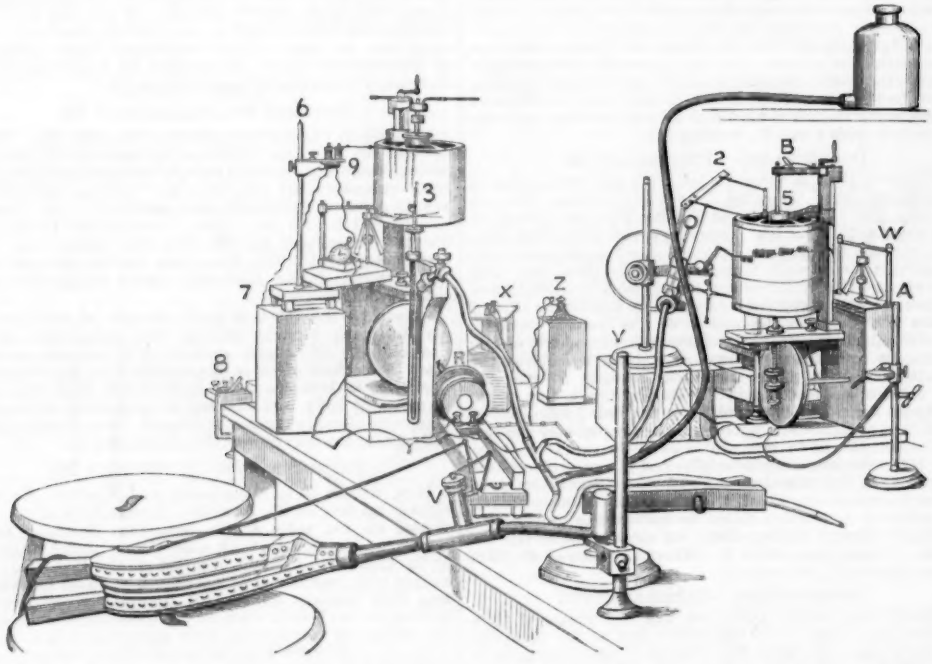
Dog, weight 36lb., unpoisoned and healthy. Into the chloroform box at 2h. 30m. 35s. Fallen down at 2h. 36m. Placed on the table at 2h. 36m. 15s. Foaming at the mouth, and kept quiet with chloroform. Artery ligatured at 2h. 42m. 30s. Cannula inserted at 2h. 43m. 25s. Connexion with manometer at 2h. 49m. 20s. Two Ludwig and five Fick tracings during—(*a*) Struggling and repeated holding of the breath when he was quite out of chloroform; (*b*) holding an ordinary cap with ammonia on it before the nose; (*c*) chloroform administration during struggling and holding of the breath; (*d*) snipping the anus; (*e*) pulling out the tongue forcibly, which had the effect of making him hold his breath; (*f*) chloroform during violent struggling; (*g*) pushing chloroform until respiration stopped; (*h*) squint operation; (*i*) chloroform pushed until death resulted.

N.B.—The Fick drum revolved once in 1m. 9s. in this and the previous experiment. In all experiments previously to 183 the Fick revolution occupied 3m. 9s.

Remarks.—Experiment 185 shows the irregularity of the blood-pressure which is produced by struggling and holding the breath when the subject is or is not under the influence of chloroform. It also shows the fall of pressure and slowing of the circulation produced by forcibly pulling forward the tongue (*vide* Ludwig I. at 3.4 and 3 7, and Fick III., reading 5). This is constantly done when patients are in danger from an over-dose of chloroform, and was the only operative procedure in the Commission's experiments which caused the same effect as electrical irritation of the vagus. During the 185th Experiment many operations were performed, with a view to induce shock without any effect upon the heart, the pulse, or the blood-pressure.

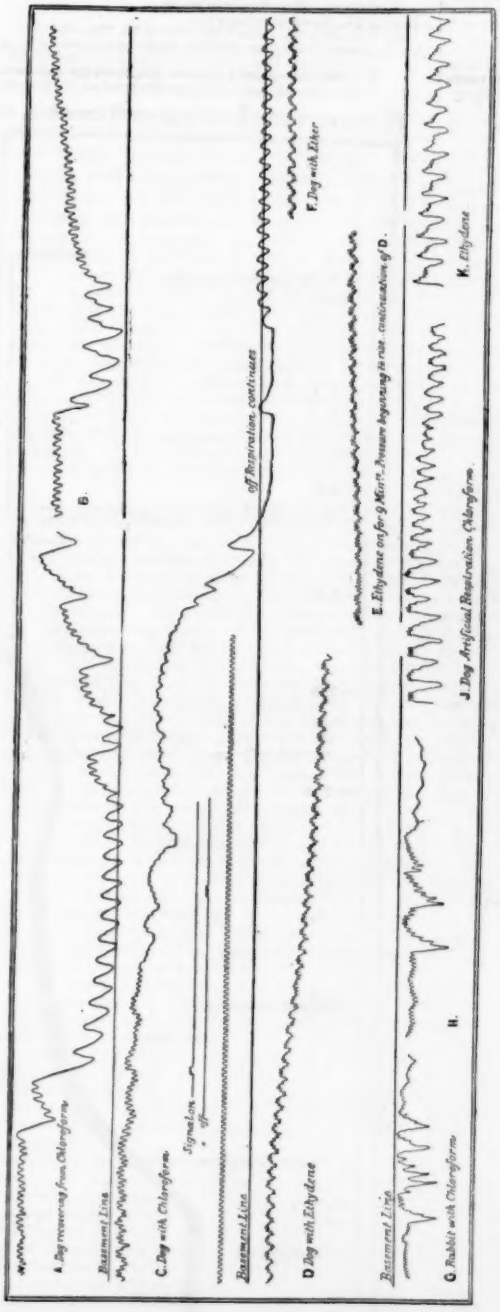
GENERAL VIEW OF THE APPARATUS EMPLOYED.

THE apparatus stands on a solid teak table. In front is seen a strong upright for supporting a Bernard's dog-holder. Close behind the upright is a wooden burette-holder, bent almost to a horizontal position. This was used to support the elongated glass bulb connected with the arterial cannula, and to prevent any drag being exerted upon it. Y is almost hidden by the upright, and is supported by a long needle above the Y-tube, which it indicates. From the Y-tube go two white tubes to the two manometers; 2 indicates Fick's manometer; 3 is fastened above the mercurial manometer, against the tracing on Ludwig's kymograph, above the clockwork of which 9 is fastened; 6 indicates the magnetic time-marker, and is raised on a large block of wood to a proper height; on a small block of wood at the bottom of the instrument is seen the watch of the observer; 7 is the Du Bois-Reymond key, by which the time-marker is worked;



R is a Du Bois-Reymond's coil for irritating nerves; 8, the key by which contact is made and broken; X is a Leclanché battery for the time-marker, and Z a bichromate cell for the coil; 5 indicates the tracing on Fick's kymograph, and W the clockwork of the instrument; A and B are two of Marey's tambours connected together. The lever of A was connected occasionally by a thread with a needle fixed in the heart or diaphragm of the animal, and the movement being transmitted to A was recorded by it on the cylinder of Fick's kymograph. V indicates the valve used with the bellows for artificial respiration. It is fixed to the nozzle of the bellows by a kind of splint made of wood and cork. Across the top of the photograph and down its centre extends the indiarubber tube conveying soda solution to the apparatus from the vessel fixed against the wall.

THE GLASGOW COMMITTEE'S TRACING, 1879.



The chloroform tracings of the Glasgow experiments should be compared with the Fick tracings of the Commission's Experiments 148, 156, and 185, in which there are irregularities due to asphyxia, or to some interference with or irregularity of the respiration. The Commission has shown that regularity of the respiration ensures regularity of the fall of the blood-pressure in chloroform inhalation, and the fact that the blood-pressure was irregular in the Glasgow Committee's tracings is proof positive that there was irregularity of the respiration in their experiments.

EXPERIMENTS WITH CHLOROFORM MADE BY SURGEON-MAJOR LAWRIE, SURGEON ARTHUR CHAMARETTE, MR. WILLIAM MAYBERRY, AND MR. KNIGHTLEY OWEN BURNE.

Temperature of room 28° C. Chloroform given in box 1 h. 58 m. 30 s. Dog fallen down 2 h. 4 m. Dog on table 2 h. 5 m. Artery ligatured 2 h. 10 m. 30 s. Cannula inserted 2 h. 12 m. 30 s. Connexion with manometer made 2 h. 16 m. 30 s.

Ludwig III. shows the effects of—

(*a*) Recovery from chloroform.

(*b*) Ordinary chloroform inhalation at 2 h. 53 m. 32 s.

1. Cornea insensitive; dog fully under at 2 h. 54 m. 30 s. 2. Breathing stopped at 2 h. 56 m. 3. Electrical irritation of right vagus coil 5 from 2 h. 56 m. 3 s. to 2 h. 57 m. 25 s. 4. Breathing restored spontaneously; chloroform continued for 30 seconds longer.

(*c*) Spontaneous recovery without artificial respiration.

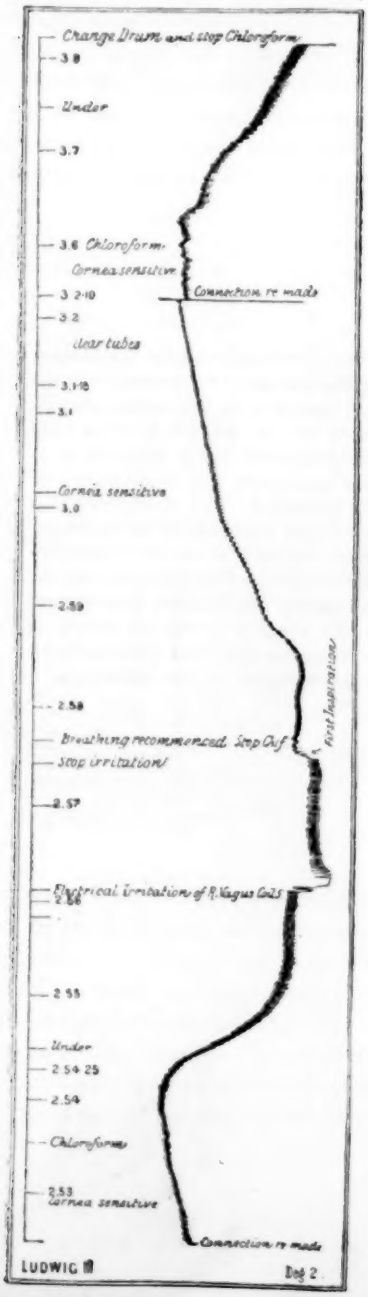
(*d*) Ordinary chloroform inhalation.

Ludwig IV. shows the effects of—

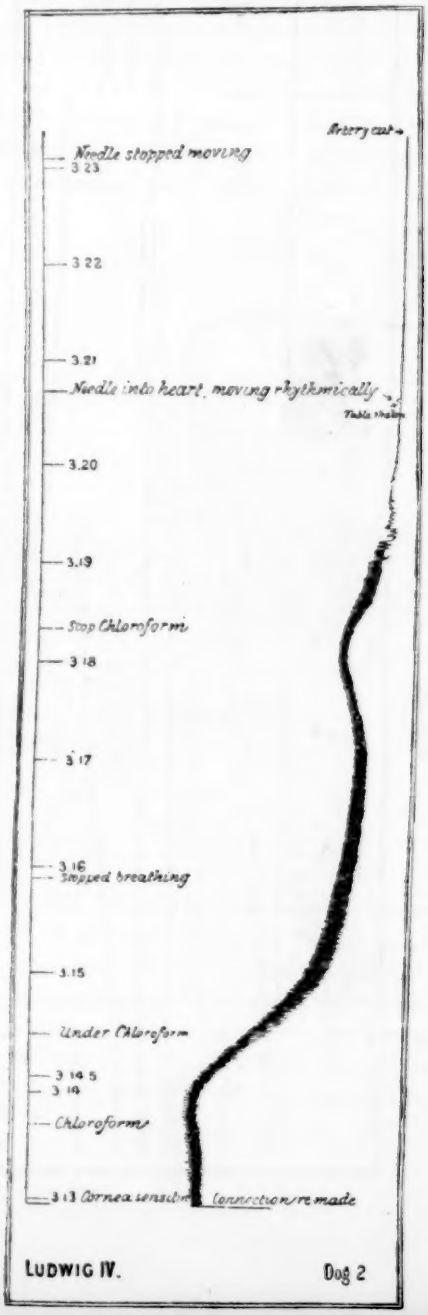
(*a*) Ordinary chloroform inhalation at 3 h. 13 m. 40 s.

1. Cornea insensitive; dog fully under at 3 h. 13 m. 30 s. 2. Stopped breathing 3 h. 15 m. 50 s. 3. Chloroform cap removed 3 h. 18 m. 15 s. 4. Needle into heart at 3 h. 20 m. 45 s., moving rhythmically until— 5. Heart needle gradually ceased to move at 3 h. 23 m. 5 s. Death

I. EXPERIMENT PERFORMED ON MARCH 6TH, 1890.



II. EXPERIMENT PERFORMED ON MARCH 6TH, 1890.



THE HYDERABAD CHLOROFORM COMMISSION.

By SURGEON-MAJOR LAWRIE.

WHATEVER may be the result of the labours of the Second Hyderabad Chloroform Commission, the gratitude of our profession is due to his Highness the Nizam of Hyderabad for the opportunity of scientific progress which his unbounded liberality has afforded. At the time the Commission was appointed, the *Pioneer*, the leading journal of India, wrote: "Nothing could show better the beneficent nature of the solid and friendly tie which binds together the British and the Nizam's Governments than the remarkable and cosmopolitan interest which his Highness the Nizam and his officials, one and all, have taken in bringing the question of the safety of chloroform to the proof. It redounds to the honour of the Government of India no less than to that of the administration of Sir Asman Jah, that the leading Indian State should take a principal share in the settlement of a question which concerns the welfare and happiness of the whole of mankind." Since we are in a position to show that the researches of the Commission have finally proved the safety of chloroform, it is right to ask that the Nizam and his Minister, Sir Asman Jah, together with the Minister's responsible adviser, the Nawab Mushtak Hussain, should receive public recognition as benefactors not only of the human race, but also of the animal kingdom, which, no less than mankind, will derive benefit from the advantages chloroform confers in the abolition of pain and in the relief of suffering.

In considering the work of the Second Hyderabad Chloroform Commission, a very brief recapitulation is necessary. Four hundred and thirty animals were killed with chloroform by the Commission's subcommittee, or were subjected to experiments as to the effects of artificial respiration, with the object of confirming, elaborating, or disproving the work of the First Commission. In addition to this, 168 animals were killed by the Commission with chloroform and ether, and the effects were recorded by Drs. Lauder Brunton and Bomford with Ludwig's and Fick's manometers. The subcommittee's experiments confirmed the results obtained by the First Commission presided over by Dr. Hehir; and in their turn the results of the subcommittee were confirmed by the experiments undertaken with the self-recording apparatus. In every case of death from chloroform the respiration stopped before the heart. The three series of experiments showed that simple chloroform poisoning causes paralysis of the respiratory centre and then gradual death, the heart being the last organ in the body to die. The exceptions to the rule that the heart retains its vitality longer than any other part of the body were found in four cases, in which more or less energetic contractions of the diaphragm occurred after the cessation of the heart's action. In one case the contractions took place after the thorax had been laid open, and when the lungs were collapsed. The Commission called these movements gasps, but solely for convenience and the want of a better term. They were no more respiratory movements than the wagging of the tail and the snapping of the jaws, which went on for ten minutes after death in two other cases, were movements of joy or of mastication. The respiratory is a coördinating centre, but there is no reason why any of the muscles should not contract spasmodically from stimuli applied to their own proper centres after the respiratory centre is paralysed. The diaphragmatic contractions in vomiting and hiccough are not generally considered respiratory movements.

With reference to the manometer experiments of the Commission, it must be borne in mind that the inhalation of chloroform necessarily causes a fall of the blood-pressure. When this was first imperfectly demonstrated by the English Commission in 1864 it was erroneously thought to be a source of danger; and the idea was confirmed by the Glasgow Committee in 1879, which went further and attempted to prove, by means of more accurate apparatus, that not only does chloroform cause a fall of the blood-pressure, but that the fall is sometimes capricious, and that this constitutes the grave danger in chloroform administration. The Commission have shown that the capricious effects which the Glasgow Committee attributed to chloroform were produced by accidental asphyxia; and the fact that the fall of the blood-pressure, as indicated in the Glasgow Committee's tracings, was irregular is now known to prove that there must have been irregularity of, or interference with, the respiration in their experiments. How the fall of the blood-pressure is produced by chloroform may be left for physiologists to determine, but it must be clearly understood that it is in no sense a danger, in any case which is fit for an operation, unless it is excessive—that is to say, unless an over-dose of chloroform is inhaled.

The facts brought out by the manometer experiments of the Commission, which can be proved from the tracings, are:

1. "Chloroform, when given continuously by any means which ensures its free dilution with air, causes a gradual fall in the mean blood-pressure, provided the animal's respiration is not impeded in any way, and it continues to breathe quietly without struggling or involuntary holding of the breath. As this fall continues, the animal first becomes insensible, then the respiration gradually ceases, and lastly the heart stops beating (*vide* Experiment 169: Ludwig and Fick tracings). If the chloroform is less diluted the fall is more rapid, but it is always gradual so long as the other conditions are maintained; and, however concentrated the chloroform may be, it never causes sudden death from stoppage of the heart."

2. Chloroform has no power of increasing the tendency to either shock or syncope during operations. Every operation that ingenuity could suggest, or that has ever been supposed to be dangerous under chloroform, was performed by the Commission in every stage of chloroformisation, without any effect upon the heart, the pulse, or the blood-pressure.

3. The Commission found, however, that struggling during chloroform inhalation, or anything which interfered with the breathing in any way, such as holding the breath or asphyxia, produced irregularities in the circulation and in the action of the heart (*vide* tracings of Experiment 148). Even such slight interference as is brought about by forcibly pulling the tongue forward had this effect (*vide* Tracing 185). In fact, pulling the tongue, which is constantly done when patients are supposed to be in danger from chloroform, was the only proceeding short of direct irritation of the vagus that appeared to produce shock. This would have been thought very paradoxical had it not been that previously, when Experiment 65 was reached, Dr. Bomford had proposed that the heart should be inhibited by electrical irritation of the vagus during chloroform poisoning, as he believed it would prove beneficial by postponing or preventing the fatal effects. If Tracings 65 and 117 are examined, it will be seen that inhibition of the heart's action and slowing of the circulation, with rapid fall of pressure, caused by irritation of the vagus, proved to be a safeguard, exactly as Dr. Bomford had anticipated, rather than a danger.

4. Following up the discovery regarding the vagus, the Commission found that an effect precisely similar to that caused by electrical stimulation of the vagus is produced through the same nerve: (*a*) in the holding of the breath, which occurs in the early stages of chloroform administration (*vide* Experiment 148: Fick I. and II., readings 2, 3, 4, 6, 8, 9, and 11); (*b*) in asphyxia (*vide* Experiment 161: Fick I., readings 14, 15, 16, and 17; and Experiment 156: Fick I., reading 5); and (*c*) sometimes after the respiratory centre is paralysed in the later stages of chloroform poisoning (*vide* Experiment 148: Ludwig III., from 4·5 to 4·7; and Experiment 178, all tracings). The same effect is produced in man by identically the same causes, and is what THE LANCET of March 2nd, 1889, wrote of as "primary and secondary syncope." It is evidenced by pallor of the face and other symptoms, to which Mr. Battle and Mr. Hewett referred in their letters to THE LANCET of Feb. 22nd and March 1st, 1890.

5. The Commission discovered gradually (*vide* Experiment 148) that it is possible to give chloroform in such a way that full anæsthesia is produced, with a gradual fall of blood-pressure, unaccompanied by any irregularity of the heart or circulation. The Commission found that the way to do this was to ensure natural and regular respiration, without struggling, holding the breath, or asphyxia, or any interference with the breathing. It became evident in the course of the experiments that it was difficult, if not impossible, to make any animal inhale unduly strong chloroform vapour without previously making it hold its breath, asphyxiating it, or making it insensible. When an inhaler saturated with chloroform is held too close to the mouth and nose an animal holds its breath; and in many animals,

especially the rabbit or the goat, holding the breath stimulates the vagus and at once slows the heart and retards the circulation.

6. The experiments of the Commission proved that death from chloroform is invariably due to an over-dose; and the question which next arose was, Are there any circumstances which make chloroform inhalation dangerous, and, as it were, open the door to an over-dose, or make the action of the drug appear capricious?

7. It is fully demonstrated by the experiments of the Commission that struggling, holding the breath, any form of asphyxia, or any kind of interference with the breathing are dangerous in chloroform administration. Obviously either complete asphyxia or continuous holding of the breath, if this were possible, would be sure preventives of poisoning by chloroform; but the danger in such conditions is due to the fact that they must alternate with extra vigorous and deep respiration. Struggling makes the inhalation of chloroform dangerous, because it either partially asphyxiates the patient, or alternately does this and accelerates the respiration and circulation, so increasing the amount of chloroform inhaled and hastening the rapidity with which the chloroform is conveyed to the brain and nerve-centres. Holding the breath causes asphyxia, and asphyxia produced in this or in any other manner poisons and stimulates the respiratory centre, and, on the one hand, makes it extremely obnoxious to paralysis by chloroform; while, on the other, it leads to gasping and deep inspirations, by which an over-dose is very soon taken in. The rapidity of chloroform poisoning when asphyxia is produced is much the same as it would be if you threw a man into a pond, and held a chloroform inhaler over his head every time he came to the surface to take a breath. This is exactly what a timid or badly taught operator often does. He measures his chloroform and pours it into a patent inhaler, which he then applies to the patient's face. The patient holds his breath and becomes deadly pale, while his vagus slows the heart and circulation. Presently the patient takes a deep gasp, and as soon as the chest begins to move, the chloroformist thinks there is no danger and replaces the inhaler on his face, too probably adding another dose of chloroform as he does so. The patient's natural protective means being exhausted, he very quickly absorbs a fatal dose of chloroform, and we are subsequently told that his heart failed, that he afterwards gasped two or three times and then died. No care in measuring the chloroform or diluting it in a mechanical inhaler is any guide whatever to the amount of the anæsthetic a patient inhales or absorbs. Moreover, breathing through an inhaler is not natural breathing.

8. The Commission has shown that the key to the safe administration of chloroform is that the breathing be natural, so as to avoid struggling and any form of respiratory embarrassment; and that it may be so the anæsthetic must be administered in an open cone or cap, which is held far enough from the patient's face to avoid causing him to hold his breath or struggle, and into which he is at first made to blow after each inspiration, the cap being brought nearer to the face, and eventually quite close to it, as the chloroform begins to take effect and he breathes regularly.

The two tracings dated March 6th, 1890, Nos. 3 and 4, Ludwig, show very conveniently all the points claimed by the Commission. They demonstrate:—(*a*) The gradual fall of blood-pressure caused by chloroform inhalation, when the chloroform is properly given, so as to entirely avoid struggling or holding the breath, &c. (*b*) The value of reflex winking when the eye is touched, as a guide to the state of anæsthesia. When this point is reached, the subject may as a rule be said to be ready for operation, and this, it will be seen from the tracings, occurs long before the fall of pressure, if this be regular, reaches a dangerous stage. (*c*) The effects of pushing chloroform till the stoppage of the respiration, the heart being unaffected till long after this stage is passed. (*d*) The slowing of the circulation and fall of blood-pressure caused by irritation of the vagus. No one doubts that the vagus has the same action in man as it has in animals. (*e*) The effect of electrical irritation of the vagus when the respiration has ceased; and the slowing of the circulation, which retards the conveyance of chloroform to the nerve centres. It is not difficult to understand how slowing of the circulation necessarily retards the conveyance of chloroform to the medulla. For example, if the pulse is sixty, and sixty atoms of chloroform are conveyed to the brain in a minute, only thirty atoms a minute will reach the brain (other things being equal) if the pulse is reduced to thirty by stimulation of the vagus. Tracings 3 and 4 of the effects of ordinary chloroform inhalation are identical up to the point where the respiration ceased. Tracing 3 then shows that the breathing having entirely ceased, stimulation of the vagus slowed the circulation from eighty-six to forty-two a minute and saved the dog's life. Tracing 4 shows how, after the stoppage of the respiration, when artificial respiration was not employed and the vagus was not irritated, the heart's action gradually ceased. Both tracings show how useless it would have been to have taken the action of the pulse as a guide. When the pulse failed, as it did at the end of Tracing 4, it was a sign of impending death. The two tracings demonstrate that by taking the respiration alone as a guide, danger could have been averted, as it always can be in the human subject under chloroform, if the breathing is carefully kept free. It is remarkable that in these two experiments the chloroform was given undesignedly for precisely the same length of time—viz., 4·42 minutes. Considered by the light of the work of the Commission, these tracings prove incontestably that the slowing of the heart and circulation through the stimulation of the vagus is a safeguard in chloroform poisoning. The symptoms—pallor and loss of pulse—produced in a similar manner in man are none the less signs of the greatest danger, as they signify that the patient has not been breathing properly, or that he has been asphyxiated, or that the respiratory centre has been paralysed. They do not indicate, as has hitherto been supposed, that chloroform has any direct effect upon the heart; but whenever they occur, at whatever stage of chloroform administration, they show most unmistakably that it has been given in such a way as to interfere with the breathing.

The most important point of all in the tracings is to be found in the invariably gradual and regular fall of blood-pressure when chloroform is properly administered. This is shown in many of the Commission's experiments, especially from No. 164 to the end (*vide* 169), and in the tracings of March 6th, 1890. In Tracings 3 and 4 of March 6th the fall of blood-pressure is gradual and perfectly regular, and they demonstrate the only method of chloroform administration compatible with absolute safety. Though fall of pressure is inseparable from chloroform administration, there is never the least danger if it falls regularly, and if the inhalation is stopped directly the state of the cornea shows that the patient is "under." Regularity of the blood-pressure depends entirely upon regularity of the respiration. Any irregularity, therefore, in the fall of blood-pressure during chloroform inhalation indicates irregularity of or interference with the respiration; and, *per contra*, any irregularity of or interference with the respiration at once causes irregularity in the fall of blood-pressure; but as long as the respiration is regular and not interfered with, the fall of the blood-pressure will exactly correspond with it, and will cease long before a dangerous point is reached *if the inhalation is stopped when the cornea becomes insensitive*, or other signs show that the patient is "under." If the respiration is kept up without struggling, holding the breath, or asphyxia, chloroform may be given slowly or quickly, freely and with perfect confidence, without the slightest risk to the patient.

From the standpoint of medical education it is a serious misfortune that ether has been allowed to displace chloroform in any of our large hospitals. The public has a right to demand that every medical man shall be able to administer an anæsthetic with safety in any part of the world; and there is no anæsthetic which can be thus universally employed except chloroform. If ether is used as the sole recognised anæsthetic in the hospitals attached to our medical schools, students cannot learn how to give chloroform; or if anæsthetics are only to be administered by specialists, students cannot learn anæsthesia practically; and it is notorious that the advance of ether has been accompanied by a decrease in the employment of anæsthetics by the general practitioner, and has limited their usefulness.

In conclusion, I desire to do justice to the wisdom of my old masters by comparing the principles Syme laid down for the safe administration of chloroform—principles which he always said he took from Sir James Simpson—with the physiological proof the Hyderabad Commission has succeeded in determining from their experiments. In the lecture to which I have so often referred, which was published in THE LANCET of Jan. 20th, 1855, Mr. Syme states:

"The points that we consider of the greatest importance in the administration of chloroform are: first, a free admixture of air with the vapour of chloroform; secondly, we do not stint the quantity of the chloroform; then, and this is most important, we are guided as to the effects, not by the circulation, but entirely by the respiration. We also always give chloroform in the horizontal position, taking care that there is no article of clothing constricting the neck, *and we never continue beyond the point when the patient is fully under the influence of the anæsthetic.*"

The Commission has demonstrated that the aim of the surgeon must be to give chloroform so that the blood-pressure should fall regularly throughout the whole administration, and that the blood-pressure can only be kept free from irregularities by absolute regularity of the breathing. The chloroform must therefore be inhaled in such a way that the breathing is natural and regular throughout. Feeling the pulse during chloroform inhalation is no guide whatever either to the blood-pressure or to the one thing necessary for safety, which is to keep it regular; and it has been shown above that the pulse is of no value as a sign of approaching danger, since it is only affected dangerously (*a*) when the respiration has been interfered with or (*b*) by an overdose. Lastly, in order to keep the breathing regular, the whole of the administrator's attention must be concentrated upon this point alone; and it is therefore clear that if, as is now recommended in most of the text-books, part of the chloroformist's attention is to be given to the pulse, an important element of danger comes into the administration.

We can no longer contend, with regard to chloroform, that the results of clinical experience and of experimental research do not agree. The investigations of the Hyderabad Commission have brought to light a strikingly precise and complete agreement between both. I have stated in THE LANCET of April 5th, 1890, that the late Mr. Syme's and my own form a continuous series amounting to more than 45,000 cases of almost daily (and often several times a day) chloroform administration, extending from 1847 to 1890, in which the respiration alone was taken as a guide, without one death resulting. Mr. Roger Williams has proved in THE LANCET of February 8th, 1890, from the statistics of one of the largest hospitals in London (which, he says, may be accepted as reliable averages of all the London hospitals), in which the pulse is taken as a guide, and is carefully watched as well as the respiration, that the deaths amount to one in every 1236 administrations. We thus see that in a long series of 45,000 cases, extending over forty years, in which the chloroformist's attention was concentrated on the respiration alone, and in which the chloroformists were students, there were no deaths at all; while in another series of 12,368 cases, in which a part of the chloroformist's attention was devoted to the pulse, and in which the chloroformists were specialists (anæsthetists), there were no less than 10 deaths—a fraction over one in every 1250 administrations. These clinical results correspond with the conclusions arrived at by the Hyderabad Commission, and are sufficient to show what a tremendous difference to the patient the mere method of administration may make. One of the London journals, the *St. James's Gazette*, recently published an article on the question "Is Chloroform Safe?" and answered it by saying, "It depends upon who gives it." We now know that it does indeed depend upon who gives it, but we also know that any intelligent third or fourth year's medical student may be trained to give it safely, so as to do good without the risk of evil.

I think I have shown that the Hyderabad Commission has proved Syme's principles to be true. The *rationale* of the proof and the keystone to the work of the Second Commission is to be found in the discovery of the safeguard action of the vagus nerve, and in the thorough comprehension of the significance of this fact. As soon as this was demonstrated, it became clear that chloroform and shock were not associates but incompatibles, and that the supposed capricious action of chloroform upon the heart was due either to the stimulating effect of concentrated vapour upon the nervous system, or to the effect of asphyxial blood upon the nerve centres, resulting in the exclusion of the poison from the system, and not the direct effect of the absorbed poison upon the heart or its nerves.

APPENDIX.

THE above paper was written before the Glasgow Committee's criticism appeared in the *British Medical Journal* of the 14th inst. I lose no time in exposing the Committee's fallacies, as I am obliged shortly to return to India.

The first point to notice in the Glasgow Committee's remarks is their reference to the paralysing effect of chloroform vapour on the muscular tissue of the heart. "Chloroform vapour has a paralysing effect upon the muscular tissue of the heart, and indeed upon all kinds of protoplasm when directly applied. When the heart of a frog is exposed to the direct action of chloroform vapour 'it became rapidly weaker till it ceased beating.'" The accuracy of this point may be conceded as far as it goes. It is only necessary to supplement it by stating that this paralysing effect is never sudden, but always gradual. "As regards the action on the mammalian heart," the Glasgow Committee performed artificial respiration by pumping air saturated with chloroform into the lungs of rabbits and dogs through an opening in the trachea. "It soon became apparent that when chloroform is given in this way there is at once a most serious effect upon the heart; *the right ventricle almost immediately begins to distend*; the heart presently stops, with the right ventricle engorged with blood." It is evident from this description that the serious effect upon the heart is not caused in the heart itself. The distension of the right ventricle must mean damage to the circulation through the lungs. It is the first effect of stasis in the lungs. Sir Joseph Lister has shown (*vide* Professor Roy's paper in the *Journal of Physiology*, 1879, vol. ii, p. 323) that when chloroform is applied directly to the web of a frog's foot stasis immediately takes place; and the same effect is undoubtedly produced in the same manner in the lungs, and is sufficient to account for the ventricular engorgement which the committee observed when they pumped air saturated with chloroform into the lungs of the rabbit. It is incorrect to imply that driving chloroform into the lungs brings it into direct contact with the heart, or that the process of pumping in the chloroformed air eliminates respiration from the inquiry. If respiration is not to be taken into consideration in this way of giving chloroform, we should first require to have it proved that the air driven into the lungs is sufficient, or sufficiently free from poison, to keep up the respiratory function independently of the action of the chloroform. Air saturated with chloroform cannot do this. In any case, the fact stated by the Committee—that the right ventricle was first affected by distension in their experiment—is proof that it was due to something outside the heart, and not to any direct action upon the heart itself.

The Glasgow Committee ask us to believe that, when air saturated with ether was pumped into a rabbit's lungs, "*twenty minutes were occupied in producing anæsthesia,*" and that it "may be given for an indefinite period without interfering with the heart." At the end of an hour's pumping "the heart was beating as vigorously as at first." It is contrary to all experience that twenty minutes should be occupied in anæsthetising a rabbit by means of air saturated with ether pumped into the lungs. The Hyderabad Commission made many experiments with ether, from among which I have selected two as examples of its effect. In the first, manometer No. 106, a pariah dog weighing 25lb., the tracing of which will be published as soon as possible, the administration of ether on a saturated sponge in a fairly close-fitting cap was commenced at 9h. 46m. 10s. on Nov. 21st, 1889. The blood-pressure rose immediately. It began to fall again at 9h. 46m. 30s., and continued to do so till death. At 9h. 47m. the cornea was insensitive. At 9h. 48m. 40s. there was rattling in the trachea. At 9h. 50m. 30s. the respiration was slow and shallow, and it stopped at 9h. 51m. At 9h. 52m. 30s. the pulse became imperceptible; artificial respiration was kept up, and the dog's body was inverted until 9h. 57m. The thorax was then opened, and the dog was found to be dead. The artery was cut and the pressure fell to zero. The whole experiment lasted ten minutes and fifty seconds, and anyone who chooses to examine the tracing can verify this description of what occurred. The second experiment took place on Nov. 26th, 1889, on two monkeys weighing 4lb. each, Nos. 129 and 130. In the first monkey, a measured quantity of chloroform was pumped into the lungs through an opening in the trachea by artificial respiration, much in the manner described by the Glasgow Committee. The inhalation was begun at 4h. 2m. 37s., 10cc. of chloroform were used in divided doses, and the heart stopped at 4h. 10m. 55s. The other monkey had ether in the same way. The inhalation was commenced at 4h. 2m. 24s., 15cc. of ether in divided doses were employed, and the heart stopped at 4h. 12m. 20s. In the chloroform experiment 10cc. of chloro-

form freely diluted with air killed a monkey in eight minutes and eighteen seconds. In the ether experiment 15cc. of ether freely diluted with air killed a similar monkey in nine minutes and fifty-six seconds. The difference corresponds with the recognised difference in the strength of the two anæsthetics in the ordinary practice of surgery. With reference to the committee's statement that the heart was beating as vigorously at the end of an hour as at first, we are not told whether there was any natural respiration when the ether administration was stopped, or even whether the animal was alive; and in the absence of reliable information on these points we cannot consider this experiment trustworthy. Either the ether which the committee employed had lost its strength, or else the committee fell into the error of supposing that because the heart was still beating the ether had not interfered with its action.

The same vigorous action of the heart after prolonged anæsthesia, brought forward by the committee in favour of ether, recently came under my notice with chloroform. On May 28th, 1890, air saturated with chloroform was administered to a rabbit in my presence, in precisely the same way as that described by the Glasgow Committee. The administration was begun at 12h. 59m. 40s. At 1h. 0m. 20s. the inhalation was stopped. There was no return of natural breathing, and the blood-pressure had fallen nearly to zero. Artificial respiration was commenced at 1h. 0m. 30s., and continued till 1h. 5m. 5s., when the artery was cut and the rabbit was thrown aside dead. The thorax was opened at 1h. 5m. 50s., and the heart was seen by several competent observers "beating vigorously and rhythmically." At 1h. 15m., it is noted, "heart still beating rhythmically; auricles and ventricles both contracting strongly, but the action of the ventricle is intermittent." At 2h. 5m., one hour after death, the auricles were rhythmically beating; the ventricles were still. This continued till 3 o'clock, two hours after death, after which no more notes were taken. In the face of these facts we cannot accept the vague statements of experiments which the Glasgow Committee first brought forward in 1879, and have repeated without confirmation in 1890.

The next part of the Glasgow Committee's paper deals with the manometer experiments of the Commission. I may observe that in all the manometer experiments of the Commission every event which is marked in the Ludwig tracings was written on the tracings, as the drum revolved, at the time it actually occurred. The committee says:—"In the first place, in Experiments 103, 119, and 157 we have sudden falls of pressure, and opposite some of these, not all, there is the note, 'holding breath.' But these sudden falls of pressure are not confined to occasions when the animal held its breath."

This must mean, if it has any meaning at all, that some of the sudden falls of pressure in tracings 103, 119, and 157 (which will shortly be published) are not accounted for, and are due to some effect on the heart which the Commission overlooked. As a matter of fact, all the sudden falls of pressure in the three tracings were due (1) to holding the breath; (2) to struggling, which interferes with respiration; (3) to asphyxia; or (4) to electrical stimulation of the vagus. This is clearly stated on the tracings, and the Glasgow Committee ought not to have endeavoured to make a point by omitting to say so, in describing the inferences which they think may be drawn from any of these sudden falls.

The committee proceed: "Turning to experiments referred to in section 12[1], where the breathing was artificially interrupted, we have been astonished to find that the traces do not bear out the statements of that paragraph." It is impossible in this short abstract to follow the Glasgow Committee through the quotations which are put forward as "facts" to substantiate the assertion that the tracings do not bear out the statements in section 12. The complete report—with the whole of the tracings taken by the Commission—will shortly be published, and an examination of those tracings which the Glasgow Committee refer to will show that their assertion is inaccurate. One example of their inaccuracy must suffice. The Committee states "at Fick 7 (Experiment 150) we have 'mouth closed,' but there is scarcely any effect on the blood-pressure, and very little on the pulsation." It is distinctly shown on the Ludwig tracing that Fick 7 began at 12h. 17m. 12s. and ended at 12h. 17m. 40s. The mouth and nose were not closed till 12h. 17m. 35s.—just five seconds before the end of, and therefore too late to produce any marked effect in, the Fick reading. But the effect is well shown in the continuation of the observation on the Ludwig manometer. The Glasgow Committee have had every possible opportunity of examining the original tracings, and an inaccurate quotation such as that which I have called attention to is no less misleading than it is, from a scientific point of view, indefensible.

I make no comment on the comparison of the Commission's Experiment 148 with the Glasgow trace. All the tracings of Experiment 148 are published above, and anybody can form his own opinion about them, and about the committee's observations on them.

The committee next confuse the fall of pressure due to ordinary chloroform inhalation with the fall due to interference with the respiration. The Hyderabad Commission have stated that the fall of pressure and slowing of the pulse, from either involuntary holding of the breath or from asphyxia in chloroform inhalation, are due to vagus stimulation, reflex or direct. The Commission has given no opinion as to the cause of the fall produced by diluted chloroform alone. It is obvious, from all their experiments, that the effects of chloroform are first exerted upon the nervous tissues, the vaso-motor centre is very soon involved, the respiratory centre becomes paralysed, then the muscular tissues become affected, and last of all the heart. The fall of blood-pressure becomes dangerous if pushed to the point of paralysis of the respiratory centre. After this point is passed, if the poisoning with chloroform still continues, the fall becomes much more rapidly dangerous; the nutrition of the heart is profoundly interfered with, and the deprivation of oxygen produced by the paralysis of the respiratory centre causes it to gradually cease to act. The Glasgow Committee contend that "when chloroform is pushed, whether the mouth and nose be held or not, the blood-pressure falls, and there is the additional fact that this seems to depend very little on the action of the vagi." In support of this contention—which the Hyderabad Commission do not dispute—the committee quote from Fick, readings 3 and 6 of Experiment 151. But Fick 3 of No. 151 is a reading during simple smothering, the vagi being intact. The effect of the smothering is to almost immediately lower the pressure about 25 millimetres, and to slow the pulse from 72 to 31 per minute at the same time. After the vagi are cut, when asphyxia is again produced by smothering (*vide* Fick 6), the effect is to accelerate the pulse to 105 per minute, while the pressure only falls about 5 millimetres. This difference is most assuredly due to the division of the vagi, and yet the committee assert that the slight fall with rapid pulse in Fick 6 is "*the true asphyxia curve*," and depends "very little on the action of the vagi." In this connexion, it may be well to notice what the Glasgow Committee have to say with regard to atropine. The committee refer to the Hyderabad Commission's discovery of the safeguard action of the vagus in chloroform poisoning, and remark that when the inhibitory action of the vagus is brought into play less chloroform is conveyed to the nerve centres; and, further, if vagus irritation ceases, or the nerve becomes exhausted, the heart "bounds on again, and the blood then becomes very quickly saturated with chloroform, and an overdose is at once conveyed to the nerve centres." The committee continue: "This ingenious view has much to support it," and "it undoubtedly explains the beneficial action of atropine as an adjunct to chloroform administration." The action of atropine is to paralyse the vagus and produce the same dangerous condition as when the nerve is exhausted. If the committee regard the effect of atropine as beneficial they must intend to convey that the inhibitory action of the vagus is a danger in chloroform administration when atropine is not used—i.e., that the normal action of a healthy nerve is dangerous to life. The greatest living physiologists are agreed that the inhibitory action of a nerve like the vagus is not a danger to the organ inhibited, and the Hyderabad Commission goes a step further and shows

[1] Complete, or almost complete, asphyxia, as by forcibly closing the nose and mouth, or closing the tracheal tube after tracheotomy, has an effect similar to, but more marked than, that produced by holding the breath, and the character of the trace corresponds precisely to that produced by irritation of the peripheral end of the cut vagus. The pressure falls extremely rapidly, sometimes almost to zero, and the heart's action becomes excessively slow, or even stops for a few seconds. If the Fick trace of Experiment 148 be compared with the photographic reproduction of trace A of the Glasgow Committee, it will be seen that they are identical, and that the slow action of the heart with great fall of pressure, which the Glasgow Committee attributed to some capricious action of chloroform upon the heart, was undoubtedly due to asphyxia.

that it may be a safeguard to the organism in poisoning by an anæsthetic. If the views of the Glasgow Committee are right, then a patient is in much less danger with the pulse at 105, carrying 105 atoms of chloroform to the medulla in a minute, than he is when the pulse is 31 and only 31 atoms of chloroform are being conveyed to the medulla in a minute. This is manifestly an absurdity. In actual practice the amount of atropine employed as an adjunct to chloroform administration would probably be so small as to be immaterial; but, if it produces any effect at all, it must be to do more harm than good.

The Glasgow Committee's tracings have been reproduced in the *British Medical Journal*. They are given above for the sake of comparison with tracings 148 and others of the Hyderabad Commission. The committee state that in the experiment which furnished tracing C the chloroform was administered "by a cloth *saturated* with the agent being held over the mouth and nose. This exactly bears out the conclusion of the Commission. The animal got chloroform with insufficient air, and the 'Glasgow trace,' which the Hyderabad Commission produced over and over again in their experiments, was due to the stimulation of the nerve centres with asphyxial blood." It only remains to add that the Glasgow Committee's remarks on the condition of an animal whose pressure is "minus" require explanation. As they stand, it looks as if the committee were describing the existence of pulse and respiration curves, as, indeed, they are represented in trace C, below the basement or true zero line, the line of no pressure, which is, of course, an impossibility. The animal in trace C was never in any danger except from the improper manner in which the chloroform was administered to it. It did not die; and the committee's argument about the danger of chloroform to the heart, which is based upon the faulty tracing, has its foundation, not in physiology, but solely in imagination.

In their practical conclusions the Glasgow Committee say: "We think the Hyderabad Commission attach too much importance to one common mode of death—failure of the respiratory centres; and while we agree generally with their conclusions, which in many respects are similar to our own, we consider it unwise and unsafe in practice to pay no attention to the state of the circulation, and to observe respiration alone. We also consider it unwise to convey to the public, even through the profession, the notion that the administration of chloroform is a proceeding in which there is practically no danger." The statistics I have given elsewhere prove the great danger in chloroform administration of dividing the attention between the respiration and the circulation. For this danger the report of the Glasgow Committee in 1879 must be held to be very largely responsible. The committee now argue as if it were wise to keep up the unfounded dread of chloroform the public have acquired, so that whenever an operation is about to be performed under chloroform the patient is nearly frightened to death beforehand, not by the operation itself, but by terror of the effect of the anæsthetic. The committee state finally: "As a matter of common prudence, and especially seeing that when respiration fails we can employ artificial means for its restoration, while if the heart fails, little or nothing can be done to avert a fatal issue, it is incumbent on every one giving chloroform to watch both the pulse and the breathing." If this statement is to be acted upon, it is incumbent on everyone giving chloroform to watch the pulse for heart failure, in spite of the fact recorded by the committee themselves, that "if the heart fails, little or nothing can be done to avert a fatal issue." No teaching could possibly be more dangerous. Without denying that there may be conditions of the heart in which failure and death may occur in some of the processes connected with chloroform administration, just as a man with a certain condition of heart may die of heart failure from running to catch a railway train, the Hyderabad Commission has shown that sudden death from stoppage of the heart is not a risk of chloroform itself. If the surgeon is to have constantly before his mind the fear of the sudden death of his patient by stoppage of the heart from the mere action of chloroform, and is to carefully watch the pulse for signs which can only have a fatal issue, it is a physical impossibility for him to concentrate his attention on the warnings given by the respiration, by which alone danger can invariably be averted. The teaching of the Glasgow Committee is wrong, and if it is followed deaths with chloroform will be as inevitable in the future as they have been under the same circumstances in the past.

ASSOCIATION OF FELLOWS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A GENERAL MEETING of this Association was held at the rooms of the Medical and Chirurgical Society, Hanover-square, on Saturday, June 14th. Among those present were: Mr. George Pollock (chairman); Messrs. T. Holmes, Macnamara, Willett, R. Barnes, Richard Davy, Rivington, Lawson Tait, Victor Horsley, Gant, Purnell, Aikin, Collins, Adams, Haward, Allingham, Paterson, Tweedy, E. Willett, Morgan, Alban Doran, Dale, Jessett, Percy Dunn, Watson, Hinckes Bird, and Herbert Allingham (hon. secretary). After the confirmation of the minutes of the last general meeting the accounts of the past year were presented, and Mr. John Morgan was re-elected as an auditor. The list of officers nominated by the committee for the year 1890[1] was read. On the proposal of Mr. WILLETT, seconded by Mr. GANT, these gentlemen were unanimously elected, Mr. Gant's name being added.

The PRESIDENT read his annual report, emphasising the objects of the Association of Fellows. An account of the work of the Association had been sent to every Fellow in the United Kingdom. From 300 to 350 favourable answers were returned to the honorary secretary. It would be remembered that on March 24th, 1884, the following resolutions were carried at an annual meeting of Fellows and Members at the College of Surgeons: "1. That it would materially conduce to the welfare of the College if the Fellows and Members were invested with a larger share of its management. 2. That it is desirable that no alteration in the constitution or relations of the College be effected without the consent of the Fellows and Members convened to discuss such alteration. 3. That there shall be an annual meeting of Fellows and Members, at which the annual report of the Council shall be presented, received, and (if approved) adopted. 4. That at such meeting the President for the ensuing year be elected by the majority of the Fellows present." The Council of the College rejected the 1st, 2nd, and 4th resolutions, but agreed to the 3rd, with the omission of the words, "received, and [if approved] adopted." The principles contained in these resolutions were approved of by over 250 Fellows of the College. On the initiation of Mr. Paul Swain, of Plymouth, this led to a meeting of the Fellows in June, 1884, when the following resolution was moved by Mr. Tweedy, and carried—viz.: "That a Society be formed to promote the general interests of the Fellows of the Royal College of Surgeons of England, and to consider all matters relating to the constitution, government, and administration of the College, whether in its corporate, examining, academical, or political capacity; and that the Society be called the Association of the Fellows of the Royal College of Surgeons of England." In January, 1885, a scheme drawn up by a committee appointed for that purpose contained the following recommendations:—"1. Any Fellow who has been a Fellow for ten years, or a Member for twenty years, shall be eligible to be a member of the Council. 2. Any member of the Council, other than the President, who may be absent from more than four successive meetings without leave shall, *ipso facto*, cease to be a member of the Council, unless a satisfactory reason for such absence be assigned. 3. The appointment of scrutineers to take the ballot at the election of the Council. 4 and 5. The discontinuance of the payment of a fee on election by members of the Council and members of the Court of Examiners. 6. The appointment of a treasurer and the auditing of the accounts by a professional auditor. 7. That Members of the College shall be eligible, as well as Fellows, for the examinerships in anatomy and physiology, except for the primary Fellowship. 8. That an annual general meeting of Fellows and Members shall be convened, at which a report of the Council shall be presented, and that other meetings may be held, either by the direction of the President, or on a requisition signed by thirty Fellows or Members. 9. That the confirmed minutes of each meeting of the Council be suspended in the hall of the College for the inspection of Fellows and Members. 10. Reduction of the number of signa-

[1] Vide THE LANCET, p. 1231.

tures required for nomination of candidates for the Council from six to three." The Council of the College rejected the following recommendations: "1. That not more than one-half of the members of the Court of Examiners shall have seats in the Council, and not more than two members of the Board. 2. That an examiner shall vacate his office if elected on the Council. 3. That six members of the Council shall retire annually. 4. That 'substitute members' of the Council shall be abolished. 5. That the Fellows shall elect the President. 6. That the members of the Court of Examiners shall be elected annually, and not hold office for more than five consecutive years. 7. That a new order of Honorary Fellows be instituted, consisting of distinguished members of the medical profession, whether members of the College or not. 8. That no alteration shall be made in the constitution of the College or in any of its by-laws without the consent of the Fellows and Members, convened to discuss such alteration." Although these points were brought before the Council of the College by a deputation of the Association to a committee of the Council, and also were subsequently laid before the Lord President of the Council, still the new Charter was obtained regardless of the reasonable views expressed and entertained by the large body of Fellows constituting this Association. The Association should therefore continue to use its best efforts to ultimately secure these desirable alterations in the Charter of the College. Mr. Pollock drew special attention to the following point—viz., the relations of the Association of Fellows with those of the Association of Members of the College. Many members of the Association of Fellows differ in opinion as to the expediency or desirability of supporting the Association of Members in their views with regard to the general management of the College and suggested alterations in the Charter, while others take a more favourable view of the matter, or, as it may be stated, a more cordial concurrence in the views of the Association of Members. But, as regards the action of the Association of Fellows, as a body, this question is an open one, and does not concern us. Each Fellow of the Association is independent, and free to act as he may consider advisable, without in the least compromising the main objects of the Association. The aim of the Association is to secure, as far as we can, the original objects of the Association; its duty is to support those who, when in Council, will endeavour to effect these objects.

Mr. WALTER RIVINGTON moved the adoption of the report, and Mr. TIMOTHY HOLMES, in seconding, laid especial stress on the fact that the Association of Fellows was in no respect hostile to the Council of the College; but, on the contrary, was endeavouring to add weight to its authority by obtaining the consensus of the majority of the Fellows to its transactions. The report was unanimously adopted.

Dr. COLLINS proposed, and Mr. LAWSON TAIT seconded, the following resolution—viz.: "That no arrangement between the University of London and the Royal College of Surgeons for the purpose of conferring degrees will be satisfactory without previously consulting the Fellows of the College of Surgeons." Carried unanimously.

Mr. JOHN TWEEDY proposed, and Dr. HAWARD seconded, and it was carried, "That the Council of the Royal College of Surgeons be asked to receive a deputation from the Association, and that the deputation consist of Messrs. Adams, Barnes, Davy, Holmes, Pollock, Rivington, and Tait, and any other member of the Association whom the President may invite.

Mr. LAWSON TAIT proposed, and Dr. BARNES seconded, "That this meeting of the Association of Fellows of the Royal College of Surgeons of England expresses its strong disapproval of the system of voting papers adopted by the Council of the Royal College of Surgeons. It is of opinion that a simple voting paper should be issued to each Fellow at the same time and together with a list of the candidates from whom the selection is to be made."

Mr. ALFRED WILLETT mentioned that the Council had exercised great care in framing the form of voting papers, in apprehension lest the medium of the post might fail to reach individual Fellows.

Mr. RICHARD DAVY stated that documents of far greater value than the College of Surgeons' voting papers were daily and safely delivered through the post.

Mr. Alban Doran, Mr. Rivington, and Mr. Holmes also spoke in favour of the alteration.

The resolution was carried and was ordered to be entered on the minutes.

UNIVERSITY OF LONDON.

FURTHER REVISED SCHEME PROPOSED FOR THE CONSIDERATION OF THE SENATE.

1.—*Objects of Incorporation.*

The purposes of the incorporation of the University to be so defined as to include, in addition to the existing purposes, the promotion of regular and liberal education throughout Her Majesty's dominions, and especially in the metropolis and its neighbourhood.

2.—*Constitution, &c.*

The University to consist of—(1) Senate; (2) Convocation; (3) Constituent Colleges; (4) Faculties; (5) Boards of Studies; with the Queen as Visitor.

3.—*Senate.*

To consist (in its final form) of the Chancellor and 41 Fellows to be appointed as follows:—The Chancellor and nine Fellows to be nominated by the Crown (hereinafter called Crown Fellows), 10; the Chairman of Convocation and nine other Fellows to be elected by Convocation (hereinafter called Convocation Fellows), 10; twelve Fellows to be elected by the faculties, 12; if and when University and King's Colleges, London, respectively shall become constituent Colleges, the President of University College, London, the Principal of King's College, London, and two other Fellows to be elected by each of these Colleges, 6; the President or Chairman of each of the following bodies (hereinafter respectively called the Royal Colleges and the Legal Bodies), if willing to act—viz., the Royal College of Physicians of London, the Royal College of Surgeons of England, the Council of Legal Education, and the Incorporated Law Society, 4; total, 42.

If and whilst any faculty shall not be constituted by reason of a deficiency of constituent colleges or for any other reason, the Crown may nominate Fellows in lieu of the Fellows to be elected by such faculty, and such nominated Fellows shall have all the powers of and be subject to all provisions relating to Fellows in whose place they are nominated.

The Senate may resolve that the president or principal or other chief officer of any constituent college for the time being admitted in all the faculties shall *ex-officio* be a member of the Senate.

Of the nine Fellows to be elected by Convocation in addition to the Chairman of Convocation, two shall be elected by the Members of Convocation who are graduates in arts, who shall vote as such accordingly; two in like manner by the graduates in laws, in science, and in medicine respectively; and one more by each of the said faculties in rotation and in the order in which they are above mentioned.

Members of Convocation holding degrees in two or more of the said four subjects shall be entitled to a vote in respect of each of such subjects.

Of the twelve Fellows to be elected by the four faculties, three shall be elected by each faculty.

The Chairman of Convocation, the President and Principal of University and King's Colleges, and the Presidents or Chairmen of the Royal Colleges and the Legal Bodies shall be Fellows *ex-officio*.

The Fellows, other than the Fellows *ex-officio*, shall retire as follows; that is to say, in every year there shall retire: (*a*) one of the Crown Fellows; (*b*) one of the Convocation Fellows; (*c*) one of the Fellows elected by each faculty; (*d*) one of the Fellows elected by University College and one of those by King's College.

The Fellow of each group to retire on each occasion shall be the one who, at the time of retirement, has been longest in office under his then existing appointment, or when several have been in office for the same period, the one who shall be ascertained by lot.

Power to the Crown and electing bodies to fill up casual vacancies occurring by death, resignation, or otherwise; but any person so appointed shall retain his office so long only as the vacating Fellow would have retained the same if no casual vacancy had occurred.

Power to re-nominate and re-elect.

The existing Members of the Senate to continue as at present; but no new Fellow shall be nominated by the Crown until the number of present Fellows appointed by the Crown not on the nomination of Convocation has fallen below nine, and then only so as to bring the number up to nine; and no new Fellow shall be elected by Convocation unless or until the number of present Fellows appointed by the Crown on the nomination of Convocation has fallen below nine, and then only so as to bring the number up to nine.

Until Convocation shall be in exercise of its powers to elect the whole nine Convocation Fellows, the election of Fellows shall be by the graduates as follows: The first shall be elected by graduates in arts, the second by graduates in laws, the third by graduates in science, and the fourth by graduates in medicine, and so on in succession.

The power of the faculties and of University College and King's College to elect Fellows and the power of the Fellows *ex-officio* to take their places as such shall take effect at once.

The retirement clause (No. 10) to come into full operation only when the Senate is constituted entirely in accordance with paragraph 3; in the meanwhile retirement of Fellows other than the existing Members of the Senate and Fellows *ex-officio* shall follow the rules laid down in paragraph 10 as nearly as may be.

In the event of any question at any time arising as to the order of retirement or the Fellow to retire, the same shall be determined by the Vice-Chancellor, whose decision in writing shall be final.

There shall be a standing committee of the Senate in each faculty, consisting of 12 Members.

The standing committee for the Faculty of Arts shall consist of the President and Principal of University and King's Colleges, London, and the three Fellows elected by the Faculty of Arts, and seven Members to be elected by the Senate.

The standing committee for the faculty of laws shall consist of the chairman of the two Legal Bodies, the three Fellows elected by the faculty of laws, and seven Members to be elected by the Senate.

The standing committee for the faculty of science shall consist of the President and Principal of University and King's Colleges, London, and the three Fellows elected by the faculty of science, and seven Members to be elected by the Senate.

The standing committee for the faculty of medicine shall consist of the Presidents of the two Royal Colleges, the three Fellows to be elected

by the faculty of medicine, and seven Members to be elected by the Senate.

Applications for examinerships shall be referred to the standing committee in each appropriate faculty, whose duty it shall be to consider the said applications, and to report to the Senate thereupon. The examiners in each faculty shall be appointed by the Senate after consideration of such reports respectively.

There shall be a standing committee of the Senate for the faculties of arts and science in connexion with the constituent colleges. This committee shall consist of the President and Principal of University and King's Colleges, of the Fellows elected by them, and of fourteen other Fellows to be elected by the Senate annually. Of these fourteen Fellows, four shall be selected by the Senate from the Fellows elected by the faculties of arts and science. The business of the committee shall be to promote the organisation, improvement, and extension of University teaching in arts and science in and for London, including the establishment of professorships and teacherships in London, and to discharge such functions in relation to the constituent colleges, and the examination of students therefrom in arts and science, as the Senate may from time to time delegate to them.

In the event of the President or Principal or other chief officer of any constituent college in all the faculties hereafter becoming *ex-officio* a Member of the Senate, such President, Principal, or officer shall become a Member of the last-mentioned standing committee, and the number of Fellows to be elected by the Senate annually shall be increased by one.

There shall be a standing committee of the Senate for the faculties of arts and science in connexion with the Colleges which are not constituent colleges, and the examinations of students other than those from the constituent colleges. This committee shall consist of fourteen Members to be elected by the Senate annually, and shall discharge such functions in relation to the examination of students, other than students in arts and science, from constituent colleges, as the Senate may from time to time delegate to them.

The Chancellor and Vice-chancellor shall be *ex-officio* Members of all standing committees.

The standing committees shall in all respects be subject to the control and direction of the Senate.

The Senate may obtain such advice and assistance from professors in Colleges and others preparing students for examinations in the University, not being constituent colleges, as may from time to time seem expedient.

4.—*Convocation.*

All elections by Convocation under this scheme shall be conducted in such manner as Convocation may from time to time determine.

5.—*Constituent Colleges.*

The constituent colleges shall be selected from such institutions in or near London as (1) give academical instruction upon a complete system and an adequate scale in all the faculties, and prepare, or are intended to prepare, students for degrees in the University; (2) give instruction upon an adequate scale in one or more even though not in all the faculties, and prepare, or are intended to prepare, students for degrees in the University.

The following institutions shall, if willing, be forthwith constituent colleges, viz.:—In all the faculties: University College, London; King's College, London. In the faculty of medicine: The medical schools of Charing-cross Hospital, Guy's Hospital, London Hospital, Middlesex Hospital, St. Bartholomew's Hospital, St. George's Hospital, St. Mary's Hospital, St. Thomas's Hospital, Westminster Hospital, and the London School of Medicine for Women.

There shall be determined by agreement between the University and the constituent colleges, or, failing agreement, by the decision of the Home Secretary, the following points, viz.:—(*a*) The number of Members of the faculty or faculties to represent the College; (*b*) the qualification of such Members; (*c*) the mode of selection of such Members by the College.

The Senate shall have power from time to time to admit new constituent colleges, but shall previously invite an expression of opinion from the Board or Boards of Studies interested. The Senate shall consider in respect of every institution seeking admission the following points:—(*a*) The character of the teaching and of the educational appliances; (*b*) the character of the foundation; (*c*) the average age of the students; (*d*) the number of students proceeding from the College to the University; (*e*) the relation of the College to any other University

On the admission of a constituent college the following matters shall be determined by the Senate, viz.:—(*a*) The faculty or faculties to which the College shall belong; (*b*) the number of Members of the faculty or faculties to represent the College; (*c*) the qualification of such Members; (*d*) the mode of selection of such Members by the College.

Power to be given to the Senate, after consultation with the Board or Boards of Studies interested, (*a*) to increase or diminish the number of the Members of any faculty or faculties representing any constituent college; (*b*) to remove any institution from being a constituent college, subject to an appeal to Her Majesty in Council.

The affiliation of Colleges to the University as now existing shall cease.

The institutions from which the University receives certificates for degrees in medicine (hereinafter called the recognised medical institutions) shall retain their right of giving such certificates, whether they be or be not constituent colleges.

Power shall be given to the Senate, after consultation with the Board of Studies of the Faculty of Medicine, from time to time to revise the list of recognised medical institutions, and to determine in what branches of medical education the certificates of each of the said institutions shall be received.

6.—*Faculties.*

There shall be four faculties, viz.:—(1) Arts; (2) Laws; (3) Science; (4) Medicine.

All departments of knowledge in which examinations may be held by the University, and not included in any other of the faculties, shall be included in the faculty of arts.

Each faculty shall consist of the representatives of constituent colleges.

Each faculty shall have the following powers and duties:—(*a*) To elect three Members of the Senate; (*b*) to elect Members of a Board of Studies; (*c*) to advise on the admission of any constituent college.

The chairman for the time being of the Board of Studies shall be the chairman of the faculty.

7.—*Boards of Studies.*

There shall be a Board of Studies in each faculty.

Each Board of Studies shall consist of—(*a*) Such a number of Members elected by the faculty, being 4, 8, 12, or 16, as the faculty shall from time to time determine. (*b*) Two Members of Convocation elected by the Members of Convocation who are graduates in the subject with which the Board of Studies is conversant. (*c*) An examiner in each subject in the faculty in which examinations are for the time being held in the University. (*d*) If the Board of Studies shall so think fit such persons, whether Members of the University or not, eminent in the subject of the faculty, not exceeding two in number as may be elected by the Board.

One-fourth of the Members of the Board elected by the faculty shall retire each year.

Any casual vacancy in the Members elected by the faculty occurring by death, resignation, or otherwise, shall be supplied by the Members of the Board; but any person so appointed shall retain his office so long only as the vacating Member would have retained the same if no casual vacancy had occurred.

The Members of the Board elected by Convocation and the co-opted Members shall retire every four years.

Retiring Members of the Board shall be re-eligible.

In the event of any faculty not being constituted by reason of deficiency of constituent colleges, or otherwise, the Crown may nominate Members of the Board in lieu of the Members to be elected by the faculties, and such nominated Members shall have all the powers of, and be subject to, all the provisions relating to the elected Members in whose places they are nominated.

The examiners in each subject may, if more than one, agree upon one of themselves to be the Member of the Board of Studies. In case they fail to agree, the one of the examiners who has for the time being held his office for the longest time without break shall be the Member. In case more than one examiner has held office for the same time, the examiner shall be nominated by the Vice-Chancellor in writing.

Each Board of Studies shall have the following powers and duties:—(*a*) To elect a chairman every year. (*b*) To consider and report to the Senate upon any matter referred to it by the Senate. (*c*) To represent to the Senate its opinion on any matter connected with the degrees and examinations and teaching of the subjects of its faculty. (*d*) To deliberate, if so requested, in conjunction with the Senate or any committee thereof.

Boards of Studies shall, if so from time to time requested by the Senate, and may, if they shall from time to time think it desirable, meet and act concurrently on particular subjects.

8.—*Matriculation and Degrees.*

The Senate shall have the following powers:—(*a*) To enter into arrangements with the constituent colleges jointly or any of them separately upon the following basis:—(1) The approval by the Senate or some body appointed by them in that behalf of syllabuses of courses of instruction proposed to be given in the Colleges to candidates for the Pass Examinations for Matriculation and the Degrees of B.A. and B.Sc.; (2) production of evidence satisfactory to the Senate of diligent attendance at such College lectures, and for such times as may from time to time be prescribed by the Senate; (3) examinations of the students by a College professor or teacher in the subjects, and an examiner to be appointed by the Senate, such last-mentioned examiner, in case of ultimate difference, to have the casting vote; (4) the conferring of the degree on the foregoing conditions. (*b*) To enter into like arrangements with any Colleges not in or near London which may satisfy the Senate that they give academical instruction upon an adequate scale in the necessary subjects, and from time to time to modify or determine such arrangements.

With the exception of examinations for degrees in the faculty of medicine and of examinations to be held under arrangements with Colleges under the powers hereinbefore contained, candidates shall be admitted to all examinations without regard to their place of education.

Candidates for degrees in the faculty of medicine to show that they have passed the required courses of instruction in one or more of the constituent colleges in that faculty or of the recognised medical institutions.

The examinations in anatomy, physiology, medicine, surgery, and midwifery for the Pass M.B. degree shall be conducted by a board of examiners, consisting of the examiners appointed by the University and examiners to be appointed by the Royal Colleges, who shall join in the reports to the Senate on such examinations. The examiners appointed by the University may be called upon, if the Senate so think fit, to make in addition separate reports. These examinations may, if so agreed on, be conducted in combination with the examinations for the Royal Colleges. This arrangement for joint examiners shall not lessen or interfere with the duty of the Senate to be satisfied as to the adequacy of the examinations in all respects.

Power to be given to the Senate with the consent of the Chancellor and Vice-chancellor to confer honorary degrees.

9.—*Professors.*

Power to hold real property, and to accept grants, gifts, devises, and legacies for the purposes of the University, including the establishment of professorships and lectureships, whether attached or not to any particular College, and the furtherance of regular and liberal education and of original research.

Power to the Senate in the event of the establishment of professorships or lectureships to assign to the professors or lecturers a representation on the faculties.

June 4th, 1890.

LITERARY INTELLIGENCE.—A new edition (the third) of the classical work, *Les Bactéries*, by MM. Cornil and Babès, has been published this week. (Paris: Félix Alcan.) It has been much enlarged, and now forms two volumes, many new chapters and illustrations having been added.

METROPOLITAN HOSPITAL SUNDAY FUND, 1890.

WE publish below further returns of the sums collected at various places of public worship on Sunday, June 8th, in aid of the Metropolitan Hospital Fund. The amount to hand is about £33,000, a sum over £2000 in excess of that received at the corresponding date last year.

Church of England.	1889. £ s. d.	1890. £ s. d.
St. Jude's, South Kensington, Rev. Preb. Forrest	1217 1 1	1257 3 3
St. Michael's, Chester-sq., Rev. Canon Fleming	1107 12 4	1106 3 6
Portman Chapel, W., Rev. H. N. Sherbrooke	173 11 2	168 16 3
St. Mary's, Bryanston-square, Rev. Hon. Canon Leigh	84 2 1	160 0 0
Christ Church, Mayfair, Rev. H. Rowsell	133 8 11	126 3 0
Parish Church, Marylebone, Rev. Canon Barker	95 17 1	92 15 3
St. Michael's, Paddington, Rev. G. F. Prescott	180 5 10	207 7 9
St. Matthew's, W. Kensington Park, Rev. W. C. Tucker	121 3 8	107 6 5
St. Peter's, Bayswater		194 0 4
St. Saviour's, Chelsea, Rev. L. C. Walford, M.A.	64 2 5	83 10 0
Christ Church, Lancaster-gate, Rev. C. J. Ridgeway	854 13 9	1016 17 6
St. Saviour's, Fitzroy-square, Rev. T. Turner	53 0 0	53 0 0
Kilstree Parish Church, Rev. T. Bedford	18 5 10	29 1 8
St. Luke's, Nightingale-lane		40 13 8
St. Paul's, Clapham, Rev. G. Forrester	60 12 8	38 16 0
Barnes Parish Church, Rev. L. T. Lochee	42 14 7	45 1 11
All Saints', Friern Barnet, Rev. H. S. Miles	37 3 8	31 0 11
Holy Trinity, Lee, Rev. B. W. Bucke	44 3 9	41 18 9
St. Alban's, Holborn, Rev. R. Suckling	20 0 0	34 14 8
St. James the Less, Pimlico		23 12 11
St. Andrew's, Holborn, Rev. H. Blunt	31 2 8	26 6 2
St. Mildred's, Lee, Rev. F. Helder	43 1 3	46 19 2
St. Luke's, West Holloway, Rev. R. Glover, M.A.	44 1 9	46 0 0
Ilford Parish Church, Rev. H. B. Barnes	14 1 6	22 18 2
Mitcham Parish Church, Rev. D. F. Wilson	30 11 5	33 1 4
St. Luke's, Hackney, Rev. W. Langhorne	29 5 9	28 14 10
Holy Trinity, Roehampton, Rev. R. Carrington	64 16 1	50 5 3
New Court Chapel, Tollington-park		40 10 6
Bromley (Kent) Parish Church, A. G. Hellicar	36 10 0	30 5 5
St. Thomas's, Regent-street, Rev. P. Bainbridge	49 13 10	61 0 0
Putney Churches, the Hon. R. Henley	115 10 0	87 10 0
Holy Trinity, Tulse-hill, Rev. F. L. Roxby	84 2 6	85 6 5
St. Peter's, Streatham, Rev. A. C. Tarbutt	64 6 2	69 3 5
St. Saviour's, Denmark-hill, Rev. L. T. Chavasse	15 14 6	43 0 4
St. Margaret's, Barking, Rev. H. H. Henson	28 1 2	24 6 3
Beddington Parish Church, Rev. Canon Bridges	29 0 7	21 17 9
Holy Trinity, Paddington, Rev. Preb. Moore	263 8 7	218 17 4
St. Peter's, Bayswater		191 18 4
All Hallows, Great and Less, Rev. T. Moore	52 4 0	52 18 3
Acton Parish Church, Rev. C. M. Harvey	35 8 7	34 7 6
Berkeley Chapel, Mayfair, Rev. T. T. Shore	70 0 6	65 15 3
St. Saviour's, Highbury, Rev. J. Bicknell	26 11 0	38 0 5
Hayes (Kent) Parish Church, Rev. C. Clowes	21 16 11	28 4 2
St. Saviour's, Ealing, Rev. W. Ranger	25 10 8	26 10 7
Christ Church, Ealing, Rev. J. S. Hilliard		32 18 9
Holy Trinity, Greenwich, Rev. S. F. Hooper, M.A.	36 8 0	26 10 0
St. German's, Blackheath		34 8 1
St. Stephen Martyr, Portland-town		45 18 0
St. Peter's, Vere-street, Rev. W. Page Roberts	220 2 11	251 9 2
St. Stephen's, Hampstead, Rev. J. Kirkman	33 1 3	35 10 1
Holy Trinity, Woolwich, Rev. J. W. Horsley	21 3 6	22 11 8
St. Philip's, Sydenham, Rev. J. G. Holmes	30 6 5	30 0 0
Holy Trinity, Anerley		73 9 6
St. Mary's, Graham-street		32 0 8
St. Dominic's, Haverstock-hill		23 19 2
All Saints', Up. Norwood, Rev. Jas. Watson, M.A.	50 6 0	32 6 7
Christ Church, Woburn-square		30 0 6
St. Stephen's, Wandsworth, Rev. C. Carruthers	62 2 0	54 3 6
St. John's, Upper Norwood		45 3 2
St. Mary's, Hornsey-rise, Rev. W. S. Lewis	42 6 6	42 0 0
Holy Trinity, Eltham, Rev. T. N. Rowsell	66 1 2	48 16 0
Epsom Parish Church, Rev. John Samuel	35 16 1	54 13 1
Holy Innocents, Hornsey, Rev. W. R. Powell	48 9 0	46 18 2
St. Philip's, Regent-street, Rev. Preb. H. Jones	27 0 0	27 18 5
Beckenham Parish Church, Rev. Henry Arnott, F.R.C.S.	53 6 5	45 13 5
St. Paul's, East Molesey, Rev. G. E. Tatham	29 11 2	27 16 7
All Saints', Ennismore-gardens		423 17 2
St. Mark's, Battersea-rise, Rev. A. C. Woodhouse	21 7 6	36 5 0
Holy Trinity, Penge-lane, Rev. S. W. Daukes	38 1 5	39 19 3
Christ Church, Gypsy-hill		73 15 2
The Magdalen Hospital Chapel		32 5 3
West Hackney Parish Church, Rev. H. B. Ottley	62 14 5	53 6 11
St. Paul's, Wimbledon-park, Rev. C. E. Brace	35 0 0	45 0 0
St. Matthew's, Upper Clapton, Rev. L. Bradford	47 12 0	53 8 9
Tooting-Graveney Parish Church, Rev. E. H. Morton	24 0 0	23 0 0
St. Saviour's, Southwark, Rev. W. Thompson	28 0 0	27 0 2
Boys' Home Chapel, Regent's-park, Rev. G. Street, M.A.	34 4 0	23 8 0
Christ Church, East Greenwich, Rev. D. Reith	57 6 9	60 12 11
Church of Ascension, Balham-hill, Rev. W. Curtis	80 5 0	110 0 5
Holy Trinity, Stroud-gn., Rev. R. Linklater, D.D.		25 6 4
St. Augustine's, Kilburn, Rev. R. C. Kirkpatrick	52 4 10	50 1 0
St. James's, Holloway, Rev. E. A. Stuart	107 7 1	102 7 0
St. Barnabas, Addison-rd.		125 17 2
St. Mary's, Kilburn, Rev. J. Robertson	107 10 8	103 3 0
St. Mary's, West Kensington		60 0 0
St. Mark's, Hamilton-ter.		283 8 0
Holy Trinity, Sydenham, Rev. H. Stevens, M.A.	200 11 6	200 2 6
Grosvenor Chapel, South Audley-st.		115 6 6
St. Stephen's, Lewisham, Rev. R. Rhodes Briston	36 0 6	33 12 1
Emmanuel Church, Hampstead, Rev. E. Davys	16 2 10	20 5 10
Curzon Chapel, Mayfair, Rev. T. F. Filmer Bennet	101 9 8	130 0 0
St. George's, Hanover-square, Rev. Canon Capel Cure	170 16 11	184 1 5
St. John's, Putney, Rev. Hon. R. Henley	50 0 0	65 10 3
St. Mary's, Putney, Rev. Hon. R. Henley	22 10 0	22 0 0
St. Paul's, Greenwich, Rev. A. Love	33 8 10	23 4 7
St. Andrew's, Streatham-cmn., Rev. W. Cubison	34 12 6	37 8 4
St. Paul's, Upper Holloway, Rev. J. Piper	10 0 0	20 16 4
St. Matthew's, Redhill, Rev. H. Brass	33 10 9	21 7 3
Orpington (Kent) Parish Church, Rev. J. Newton Heale	15 12 9	29 17 9
St. Luke's, Nutford-place		61 1 4
Hatfield-Parish Church and Chapel, Rev. Lord Rupert Cecil	18 7 10	20 9 8
St. Paul's, Beckenham, Rev. Charles Green	120 0 0	112 14 6
St. John the Evangelist, Brownswood-park, Rev. G. Birkett Latreille	17 8 5	20 6 0
Finchley Parish Church, Rev. S. Bardsley	47 11 5	60 5 0
St. Thomas's, Stamford-hill		25 2 2
St. Mark's, Kennington, Rev. A. G. Bowman	36 18 4	50 18 10
St. John's, Hampton Wick, Rev. W. W. Archer	13 13 0	20 0 0
St. Mary's, &c., Wimbledon, Rev. Can. Haygarth	200 4 0	180 10 6
Lock Hospital Chapel		28 1 2
St. Thomas's, Westbourne-grove		35 8 6
St. Paul's, Great Portland-st., Rev. G. W. Williamson	41 1 6	35 19 8
All Saints', Paddington, Rev. J. Maconochy	46 17 10	48 18 6
St. Paul's, Canonbury, Rev. J. H. Shaw	41 11 3	45 13 6
St. Dionis', Fulham, Rev. J. S. Sinclair	22 0 0	23 1 3
St. Peter's, Fulham, Rev. Rowland Cardwell, M.A.	15 11 3	20 0 0
All Saints', Plumstead, Hon. Rev. W. T. Rice	27 15 4	28 4 5
Christ Church, Brondesbury		55 3 0
Holy Trinity, Kilburn		51 1 2
Trinity Church, Marylebone, Rev. Canon Cadman	88 14 6	77 11 9
Christ Church, Marylebone, Rev. E. Venables	35 14 6	40 1 4
Chapel of the Royal Hospital, Regent's-park		21 15 0
St. Peter-upon-Cornhill, Rev. Preb. Whittington		22 14 3
St. John the Evangelist, Paddington, Rev. Delmé Radcliffe	160 0 8	211 0 3
Hendon Churches, Rev. Preb. Scrivener, LL.D.	39 4 3	45 1 2
Chelsea Old Church, Rev. R. H. Davies	26 11 6	26 16 6
Chapel Royal, Savoy		51 8 4
St. John at Hackney, Rev. F. E. Gardiner	42 15 0	52 10 1
Church of the Ascension, Blackheath, Rev. W. A. Moberley	42 4 0	31 9 1
All Saints', West Dulwich		23 13 0
St. Paul's, Herne-hill, Rev. S. F. Bridge	54 3 3	51 11 3
St. Paul's, Paddington, Rev. H. V. H. Cowell	26 0 0	26 10 6
Church of the Immaculate Conception, Farm-st.		66 0 3
St. Mary's, Hornsey-rise, Rev. W. S. Lewis	42 6 6	42 0 0
Holy Trinity, Knightsbridge, Rev. E. G. Hall, M.A.	33 19 6	37 9 5
St. Thomas's, Portman-sq., Rev. H. Geary, M.A.	94 12 6	82 1 9
St. Anne's, Highgate-rise		28 5 5

Congregational.		
East Finchley, Rev. J. Tinling, B.A.	20 17 9	20 10 10
Upper Norwood, Rev. G. Martin	33 6 8	27 7 6
Stamford-hill, Rev. A. Walters	53 10 7	116 3 6
Park Chapel, Camden-town, Rev. J. Harrison	40 7 6	43 5 1
Lyndhurst-road, Hampstead, Rev. R. F. Horton	59 7 8	93 17 7
Kensington, Rev. E. White	74 8 10	80 3 0
Clapham, Rev. J. G. Rodgers, M.A.	70 0 0	62 19 2

Presbyterian.		
Willesden, Rev. James Durran	24 0 0	22 0 0
St. Andrew's, Norwood, Rev. R. Taylor	40 0 0	40 0 0
Trinity, Streatham, Rev. Wm. Macphail, M.A.	22 12 11	21 0 0
Regent-square, Rev. J. McNeil	106 19 4	128 1 3
St. John's-wood, Rev. J. M. Gibson, D.D.	79 0 0	90 0 0
Crouch-hill, Rev. J. B. McLarry, B.A.	37 1 9	44 6 2

Baptist.		
Hampstead, Rev. W. Brock	51 9 6	56 6 7
Brockley-road		22 14 9
Holloway, Upper, Rev. J. R. Wood	28 15 2	33 5 9
Bloomsbury, Rev. J. Baillee	47 0 2	39 0 8

Wesleyan.		
Upper Tooting, Rev. W. Brumgate	12 16 6	20 5 0
Finsbury Park, Rev. J. Crabtree	28 11 7	24 8 8

Various.		
The Theistic Church, Rev. C. Voysey		85 0 0
Roslyn-hill, Unitarian, Rev. Thos. Sadler, Ph.D.	92 2 2	104 11 2
Friends' Meeting House, Reigate, Rev. J. B. Crossfield	23 16 2	20 18 2
Carmelite Church, Kensington		36 0 0
Wandsworth West, Circuit		27 1 6

Donations.	£ s. d.		£ s. d.
Lady Tilson (a further)	10 0 0	J. R. D. Tollemache, Esq.	20 0 0
H. A. Soames, Esq. (a further)	20 0 0	C. Douglas, Esq.	5 0 0

INTERNATIONAL MEDICAL CONGRESS, BERLIN, 1890.

THE following resolutions were passed at a meeting of the General Committee held on May 22nd:—

1. All notices regarding general addresses, reports, subjects for discussion, or papers should, as far as possible, be forwarded to the General Secretary by June 10th, in order that they may be announced in the general programme to be issued prior to the Congress. Communications sent in later cannot be included in this programme, and cannot be announced until the commencement of the Congress. 2. Promises of communications, and announcements by those wishing to take part in discussions, should be sent in as soon as possible to the offices of the Congress, Berlin, N.W., Karlstrasse, 19. Information on the part of those intending to be present is of especial importance for the general arrangements, and notices and invitations can only be sent to those who have announced their intention of being present. 3. It is requested that home and foreign members will obtain their tickets beforehand, by sending the subscription of £1 to the treasurer, Dr. Bartels, Berlin, S.W., Leipzigerstrasse, 75. By this means members will be spared trouble and loss of time at the commencement of the Congress, and the list of members can be made complete and accurate from the first. It is further recommended that members should secure their lodgings as early as possible. Applications regarding rooms should be sent to the Wohnungscomité, Berlin, N.W., Karlstrasse, 19. 4. Although the functions of the organising committees cease with the opening of the Congress, when the direction will be assumed by the sections themselves, yet in order to make provision for continuity in working, it is advisable that a committee should be nominated for each section, as in this way only can an orderly conduct of the business be ensured without trespassing on the authority of the honorary presidents to be elected later. To fulfil this object, it is requested that each section will secure at least two secretaries, capable of translating German, French, or English into their native tongue. Sections in which a large amount of business will be transacted should be careful to secure sufficient assistance of this nature, and the practicability of obtaining members capable of speaking other languages, especially Italian, Spanish, and Russian, is to be borne in mind, since the regulations allow these languages to be used in discussions, provided some one be present to render the gist of the speaker in one of the official languages. In order to ensure the success of this secretariat, it is hoped that members of the provisional sectional committees will assist in arranging the succession of business. 5. With regard to the honorary presidents, it is specially pointed out that under no circumstances are such officers to be nominated before the commencement of the Congress. At the first meetings in which each section is constituted such officers are to be chosen from the members present, and the nominations communicated by letter to the central office of the Congress. 6. All speakers and reporters are reminded that they are required to bring a short abstract of their speeches with them. They are to be legibly written in one of the official languages of the Congress on one side of the paper only and ready for printing. Manuscripts handed in at the termination of the Congress cannot receive consideration. 7. Only those communications can be included in the proceedings which are read by the author himself or a special deputy. Papers sent in beforehand to the Secretary in the absence of the author or a special deputy will be passed over.

Sectional dinners will be arranged on a day to be determined by the General Committee. These dinners will all take place on the same date, and will be organised and presided over by the official committee of the section. With a view to prevent unnecessary expense the maximum price will be fixed at 10s., wine not included. Ladies may be present at these dinners. It has been arranged that special ladies' tickets shall be issued to the relatives of members. These will admit ladies to all such meetings as may be suitable for their attendance. For foreign members there will be no subscription. German members will pay a subscription of 10s. for such tickets.

The following gentlemen have been appointed by the Hebdomadal Council of Oxford University representatives of the Faculty of Medicine at the International Medical Congress to be held at Berlin in August, 1890, on the recommendation of the Board of the Faculty of Medicine:—Sir Henry W. Acland, M.D., Regius Professor of Medicine; John S. Burdon Sanderson, M.A., M.D., Waynflete Professor of Physiology; William S. Church, M.D., Christ Church; Francis H. Champneys, M.D., Brasenose College; William Bruce Clarke, M.A., M.B., Pembroke College.

ANNUAL DINNER OF THE ARMY MEDICAL DEPARTMENT.

THE annual dinner of the Army Medical Department was held on Wednesday evening at the Holborn Restaurant, the Director-General, W. A. Mackinnon, C.B., in the chair. The guests present included Mr. Jonathan Hutchinson, President of the Royal College of Surgeons; Sir William Mac Cormac, Mr. Macnamara, Sir James McGrigor, and others. Sir Andrew Clark, President of the Royal College of Physicians, and several others were unavoidably prevented from being present. After the usual loyal toasts the chairman proposed "The Health of the Sister Services," which was responded to by Mr. Macnamara. The toast of "The Guests" was proposed by Sir Thomas Crawford, who coupled with it the name of Mr. Jonathan Hutchinson. "The Health of the Chairman" was proposed by Sir William Mac Cormac.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN twenty-eight of the largest English towns 5672 births and 3199 deaths were registered during the week ending June 14th. The annual rate of mortality in these towns, which had 17·8 and 18·0 per 1000 in the preceding two weeks, fell again last week to 17·2. The rate was 16·2 in London and 18·0 in the twenty-seven provincial towns. During the first eleven weeks of the current quarter the death-rate in the twenty-eight towns averaged 19·4 per 1000, and was 0·9 below the rate in the corresponding periods of the ten years 1880–89. The lowest rates in these towns last week were 9·6 in Nottingham, 10·5 in Brighton, 11·5 in Bristol, 12·9 in Cardiff, and 13·2 in Leicester. The rates in the other towns ranged upwards to 21·0 in Sheffield, 21·1 in Newcastle, 22·5 in Wolverhampton, 23·8 in Plymouth, and 26·2 in Manchester. The deaths referred to the principal zymotic diseases, which had been 396 and 405 in the preceding two weeks, fell again last week to 401; they included 148 from measles, 93 from whooping-cough, 51 from scarlet fever, 39 from diarrhœa, 36 from "fever" (principally enteric), 33 from diphtheria, and 1 from small-pox. The lowest death-rates from these diseases were recorded in Leicester, Bristol, Nottingham, and Blackburn, and the highest rates in London, Manchester, Bolton, and Liverpool. The greatest mortality from measles occurred in London, Birmingham, and Liverpool; from scarlet fever in Wolverhampton and Manchester; from whooping-cough in Derby and Bolton; and from "fever" in Birkenhead. Of the 33 deaths from diphtheria, 24 occurred in London and 3 in Manchester. The fatal case of small-pox occurred in Plymouth. Seven cases of small-pox were under treatment in the Metropolitan Asylum Hospitals at the end of the week, and not one in the Highgate Small-pox Hospital. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of last week was 1152, against numbers increasing from 1067 to 1133 on the preceding three Saturdays; the new cases admitted during the week were 104, against 106 and 141 of the previous two weeks. The deaths referred to diseases of the respiratory organs in London, which had declined in the preceding eight weeks from 384 to 229, rose last week to 240, and were 15 above the corrected average. The causes of 54, or 1·7 per cent., of the deaths in the twenty-eight towns were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Brighton, Portsmouth, Norwich, Plymouth, Wolverhampton, Derby, Halifax, and Newcastle-on-Tyne. The largest proportions

of uncertified deaths were recorded in Nottingham, Liverpool, Blackburn, and Huddersfield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 23·3 and 22·0 per 1000 in the two preceding weeks, declined again to 19·9 in the week ending June 14th, but exceeded by 2·7 the rate which prevailed during the same period in the twenty-eight English towns. The rates in the eight Scotch towns ranged from 10·9 in Perth and 13·1 in Greenock, to 20·7 in Dundee and 25·4 in Glasgow. The 516 deaths in the eight towns showed a decline of 52 from the number in the previous week, and included 39 which were referred to measles, 22 to whooping-cough, 20 to diarrhœa, 6 to diphtheria, 4 to "fever," 2 to scarlet fever, and not one to small-pox. In all, 93 deaths resulted from these principal zymotic diseases, against 114 and 97 in the preceding two weeks. These deaths were equal to an annual rate of 3·6 per 1000, and exceeded by 1·4 the mean rate last week from the same diseases in the twenty-eight English towns. The highest death-rates from these diseases were 4·8 in Glasgow and 6·6 in Dundee. The fatal cases of measles, which had been 48 and 35 in the preceding two weeks, rose again last week to 39, of which 24 occurred in Glasgow and 14 in Dundee. The 22 deaths from whooping-cough showed a decline of 9 from the number in the previous week, and included 14 in Glasgow and 3 in Dundee. The 20 deaths attributed to diarrhœa showed a further increase upon recent weekly numbers, 6 being returned in Edinburgh, 5 in Glasgow, and 4 in Dundee. Of the 6 deaths from diphtheria, 2 occurred in Glasgow and 2 in Edinburgh; and 3 of the 4 deaths from "fever" were returned in Glasgow. The deaths referred to diseases of the respiratory organs in the eight towns, which had been 102 and 105 in the preceding two weeks, declined last week to 98, but exceeded the number in the corresponding week of last year by 10. The causes of 57, or nearly 11 per cent., of the deaths in the eight towns were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had declined from 23·9 to 21·4 per 1000 in the preceding three weeks, rose again to 25·3 during the week ending June 14th. During the first eleven weeks of the current quarter the death-rate in the city averaged 24·0 per 1000, the rate for the same period being 17·5 in London and 19·7 in Edinburgh. The 171 deaths in Dublin last week showed an increase of 26 from the number in the previous week; they included 5 which were referred to whooping-cough, 4 to "fever," and 3 to diarrhœa, and not one either to small-pox, measles, scarlet fever, or diphtheria. Thus the deaths from the principal zymotic diseases, which had been 11 and 9 in the preceding two weeks, rose again last week to 12; they were equal to an annual rate of 1·8 per 1000, the rate from the same diseases being 2·6 in London and 2·3 in Edinburgh. The fatal cases of whooping-cough, which had been 5 and *nil* in the preceding two weeks, rose again to 5 last week. The 4 fatal cases of "fever" corresponded with the number in the preceding week. The deaths of infants showed a further increase upon those recorded in the preceding two weeks, while those of elderly persons showed but slight variation. Five deaths from violence and 5 inquest cases were registered during the week; and 44, or slightly more than one-fourth, of the total deaths occurred in public institutions. The causes of 29, or 17 per cent., of the deaths were not certified.

THE SERVICES.

ARMY MEDICAL STAFF.—Brigade Surgeon Francis Howard, M.D., has been placed on temporary half-pay, on account of ill-health (dated June 6th, 1890); Surgeon-Major James Bennett Kelly, ranking as Lieutenant-Colonel, to be Brigade Surgeon, vice J. F. Beattie, M.D., retired (dated May 31st, 1890).

INDIA OFFICE.—The Queen has approved of the following promotions among the Officers of the Staff Corps and Indian Medical Service and admissions to the Staff Corps made by the Governments in India:—Bengal Staff Corps: Surgeons to be Surgeons-Major (dated March 30th, 1890)—Jarlath Ffrench Mullen, M.D.; Eugene Cretin; Andrew Duncan, M.D.; Geo. Frederick Nicholson, M.D.; Samuel Ferguson Bigger; Geo. Scott Robertson; and Geo. Michael Nixon. Madras Medical Establishment: Surgeons to be Surgeons-Major (dated March 30th, 1890)—Thomas Henry Pope; Robert Pemberton; Damodar Purshotum Warliker; James Joseph Moran, M.D.; Ferdinand Clarence Smith; William Adair Quayle, M.D.; and Henry Armstrong. Bombay Medical Establishment: Surgeons to be Surgeons-Major (dated March 30th, 1890)—Charles Monks; Phirozsha Jamsetjee Damania; George Henry Bull, M.D.; and Fredk. Fitzgerald MacCartie. The Queen has also approved of the retirement from the Service of the undermentioned Officers: Brigade Surgeon Joseph Francis Barter, Madras Medical Establishment (dated April 21st, 1890); Brigade Surgeon Hugh Griffith, Madras Medical Establishment (dated April 30th, 1890); Brigade Surgeon William Dymock, Bombay Medical Establishment (dated April 30th, 1890).

ADMIRALTY.—The following appointments have been made:—Staff Surgeons: Alfred H. Miller to the *Basilisk*, and William M. Rae to the *Serpent* (both dated June 24th, 1890). Surgeons: George H. H. Symmonds to Chatham Hospital, and Alfred H. L. Cox to the *Pembroke* (both dated June 29th, 1890); William W. Pryn to the *Indus*, and Alfred Crosley to the *Asia* (both dated June 13th, 1890); George Hewlett to the *Sandfly*, and F. W. Collingwood to the *Curlew* (both dated June 24th, 1890); and Edward H. Williams to Chatham Hospital, temporarily.

Staff Surgeon Joseph Wood, M.D., has been promoted to the rank of Fleet Surgeon in Her Majesty's Fleet (dated June 7th, 1890).

VOLUNTEER CORPS.—*Rifle:* 3rd Volunteer Battalion, the King's (Liverpool Regiment): Acting Surgeon H. Heald resigns his appointment (dated June 14th, 1890).—3rd Volunteer Battalion, the Prince of Wales's Own (West Yorkshire Regiment): Edward Octavius Croft, Gent., to be Acting Surgeon (dated June 14th, 1890).—3rd (Dumfries) Volunteer Battalion, the King's Own Scottish Borderers: Walter Duncan Grieve, M.B., to be Acting Surgeon (dated June 14th, 1890).—2nd Volunteer Battalion, the Gloucestershire Regiment: Surgeon-Major (ranking as Major) T. Partridge resigns his commission; also is permitted to retain his rank, and to continue to wear the uniform of the Battalion on his retirement (dated June 14th, 1890).—4th (Perthshire) Volunteer Battalion, the Black Watch (Royal Highlanders): Robert Stirling, M.D., to be Acting Surgeon (dated June 14th, 1890).—1st Volunteer Battalion, the King's Own (Yorkshire Light Infantry): Acting Surgeon A. R. Steel to be Surgeon (dated June 14th, 1890).—15th Middlesex (the Customs and the Docks): Surgeon-Major (ranking as Lieutenant-Colonel) W. Dickson, M.D., resigns his commission; also is permitted to retain his rank, and to continue to wear the uniform of the Corps on his retirement (dated June 14th, 1890).

Correspondence.

"Audi alteram partem."

ELECTION OF FELLOW OF THE LONDON UNIVERSITY.

To the Editors of THE LANCET.

SIRS,—I should not be doing my duty either to my friends or to myself if I were to allow Dr. Job Collins' letter concerning the coming nomination for the Fellowship of the London University to remain, so far as it relates to myself, unanswered. It is true that I replied fully to his letter to me which he reproduces in your columns; and personally I neither had nor have any objection to the publication of my reply. But as I had been entirely passive in respect of my candidature, I thought it right to leave it to some of those who had been active in my support to determine for me whether I should give or withhold assent. Dr. Collins' letter to me was highly controversial, and it was thought, on the whole, better that I should not enter into controversy. Dr. Collins' quotation of epithets from my former utterances, and his suggestion of my views with respect to the University of London, are altogether misleading. I have never been hostile to the University; I have never advocated any lowering of the standard for its medical degrees, and I advocate nothing of the kind now; but I have in former times criticised the methods of the University in dealing with the London medical schools and the medical profession, and have advocated changes (and, as I believe, improvements) in its examinations, with the objects of encouraging medical students to

associate themselves with it, and of promoting the interests and influence of the University itself. More than ten years ago I addressed a letter to the Chancellor, which was subsequently published, in which I pointed out that up to that time the University had failed to take that position in regard to the medical schools of London and English practitioners of medicine which it ought to have taken, and that this failure was due to two causes—one being the character and method of the matriculation and preliminary scientific examinations, the other being the fact that the University held aloof from the teaching institutions with which it was nominally connected; and I pointed out the principle on which, as it seemed to me, these defects might be remedied. In the year 1885 a movement originated in the British Medical Association with the object of devising some plan by which facilities might be afforded to London medical students for obtaining degrees in medicine; and, in the first instance, the University of London was approached in reference to the matter. I joined in this movement, and, in a speech which I made before a committee of the Senate, expressed myself much as I had expressed myself in 1879. I cannot pretend that my letter to the Chancellor or my speech had any effect. But I am proud to know that within the last few years the University has carried out a series of reforms which are in almost exact accordance with my published views, and that the recommendations of the University for London Commission, which the Senate are now in process of adopting, are entirely on the lines which I laid down in my letter and in my speech. I may add that nothing that I have ever written or said implies that I would give a University degree for mere medical knowledge, however extensive and profound. On the contrary, I have always held that a University degree should imply, in addition to medical excellence, special scientific or literary training.

I am, Sirs, yours truly,

Old Burlington-street, June 18th, 1890. J. S. BRISTOWE.

THE COMING ELECTION AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editors of THE LANCET.

SIRS,—Last year the eminent Vice-Presidents of the College of Surgeons, who were applying for re-election to the Council, set the example of issuing addresses to the Fellows through the post, and some lesser candidates, myself among the number, felt constrained to do likewise, if only to purge ourselves from complicity with certain persons who had been stigmatised as endeavouring to deprive the Fellows of the College of their privileges. As I do not think it desirable that this practice should be continued, whilst it is only proper that the Fellows should have an opportunity of learning the opinions of candidates for their suffrages, I should be obliged if you will allow me to state the views to which I should endeavour to give effect in the event of my election to one of the three vacant seats in the Council. Happily, this can be done in a very short compass. Not only am I opposed to any diminution in the number of representatives of the Fellows on the Council, and to any curtailment of their rights and privileges, but I am anxious to see the Fellows a more homogeneous, united, and influential body than they are at present. It has been conclusively shown that there is a vast disparity between the position of the Fellows of the Royal College of Surgeons of England and that of the Fellows of every other professional college in the realm, and it has been suggested that, without interfering with the annual meeting of Fellows and Members now summoned by the Council, separate meetings of Fellows should be convened within the College once or twice a year, at which questions of importance and interest to the Fellows can be discussed and authoritatively determined. This policy has my cordial support. I have great faith in the beneficial influence of free and open discussion, and the assembling of the Fellows within their own College would create an *esprit de corps* which would be advantageous both to the College and to the profession, and would "add strength and dignity to the Council." To further this policy is the main object with which I have come forward as a candidate, but on all questions which arose I should endeavour to preserve an open mind and to exercise an independent judgment.

I am, Sirs, yours truly,

Finsbury-square, June 17th, 1890. WALTER RIVINGTON.

"THE ADMINISTRATION OF NITROUS OXIDE GAS."

To the Editors of THE LANCET.

SIRS,—In the summary of my paper on this subject, which appears in your issue of June 14th, are sundry errors, which seem to me to be of sufficient importance to warrant me asking you to allow of their correction. The object of my paper was twofold: "First, to insist upon the value of records in *all* cases; and, secondly, inasmuch as example was better than precept, to give an analysis of cases actually recorded." Of the sixty-five consecutive administrations, in *two instances* it was necessary to draw forward the tongue—i.e., not 2 per cent., but rather more than 3 per cent. With regard to methods of administration (whether "pure" or "supplemental"), your summary has exactly reversed the meaning I intended to convey, which was that unpleasant after-effects were more likely to occur immediately after the inhalation of gas from the supplemental bag; but it would almost appear, judging from the particular series of cases under consideration, that the remote after-effects were more troublesome when pure gas was used. The condition of the pupil was noted in 797 cases altogether, but wide dilatation only in 366; in 194 there was little or no dilatation, and in the remainder varying degrees. I am particularly anxious, however, that it should not go forth that I ever suggested that "more or less headache was the rule rather than the exception" as an after-effect of the inhalation. So far from this being my experience, I took considerable pains to make it quite clear, as I thought, that in the majority of instances absolutely *no* after-effects were experienced, and that even when such effects *did* develop they were limited in most cases to slight headache. I trust that you will consider with me that the alterations made are of sufficient importance to justify my asking you for an early insertion of this letter. I am, Sirs, yours faithfully,

Chandos-st., Cavendish-sq., June, 1890. J. FREDK. W. SILK.

URINE TESTING IN PREGNANCY.

To the Editors of THE LANCET.

SIRS,—I am surprised to find that Dr. Fyffe, in spite of my disclaiming all responsibility for the misprint in Dr. Herman's paper, and for the method employed by him, still justifies his original attack on me. I was perfectly unaware till I saw Dr. Fyffe's letter of May 27th that Dr. Herman had published his observations, and was certainly unaware that my name had been thus associated. Dr. Fyffe was no doubt justified in calling Dr. Herman's attention to the misprint which had occurred in his paper, but he had no right to make it the basis of an attack on me in THE LANCET, without ascertaining beforehand how far I was responsible for the words used by Dr. Herman. It has not hitherto been usual to make an attack from secondhand reports or statements, but to refer to the person so quoted whether he has been correctly reported. Had this wholesome rule been observed in this instance, I venture to think Dr. Fyffe would have limited his remarks in his first letter to a simple correction of the misprint in Dr. Herman's paper.

I am, Sirs, yours truly,

Queen Anne-st., June 18th, 1890. CHARLES HENRY RALFE.

*** This correspondence must now cease.—ED. L.

LONDON AND EDINBURGH DEGREES.

To the Editors of THE LANCET.

SIRS,—Since "One who means to pass the Sphinx" does me the honour to throw doubt on an assertion of mine relating to matters of fact, I must request him to pardon me when I intimate my disinclination to continue this correspondence—so far as he is concerned.

I wish him all possible success in his encounter with the mystic lady, and beg to remind him, as an aspirant Œdipus, that his prototype did not materially strengthen an untenable position at Thebes by the use of unparliamentary language towards his senior, Tiresias.

I am, Sirs, faithfully yours,

Kirkby Lonsdale, June 16th, 1890. BRYAN C. WALLER.

NORTHERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

The Death-rate of Newcastle.

AN important discussion has taken place in our City Council as to the late excessive death-rate, and there was a strong opinion expressed that the present population was under-estimated, that the increase since the last census was from 30,000 to 33,000, and that, as the death-rate was calculated on about half that increase, the Registrar-General's calculations did not reveal the real rate of mortality in Newcastle. Newcastle, it was stated, had the highest birth-rate in England and Wales, and, as mortality was greatest amongst infants, the high birth-rate was found to affect the death-rate. It is useless to speculate upon these statements; while there can be no doubt as to the rapid increase of Newcastle, consequent upon its manufacturing prosperity.

The Strike amongst Female Lead-workers.

There has been a strike for higher wages amongst the female whitelead-workers on the Tyne, and about 300 have been out of employment for some time. If the strike should continue long enough for the women to find other employments than the perilous one of the whitelead factory, and if machinery could be substituted for their labour, it would be a blessing and save many lives.

Newcastle Eye Infirmary.

At the annual meeting of the Newcastle Eye Infirmary it was reported that the number of out-patients' new cases for the past year had been 2897, while there had been 254 in-patients admitted for operation and other treatment. It was mentioned in the statement that the usefulness of the institution was curtailed for want of proper support, and that many cases were treated as out-patients who would be much better if admitted to the infirmary, and that, compared with the support given in many other large towns to ophthalmic hospitals, where the occupations do not offer such risks to injury of sight, the Newcastle Eye Infirmary is only poorly supported.

Stanley and his Officers.

The Stanley party are expected in Newcastle in a day or so, and their visit is looked forward to with great interest. They are expected to attend a reception on Thursday next to be given by the Mayor and Corporation in the Assembly Rooms, when Mr. Stanley will be presented with the freedom of the city. I hear also that the University of Durham is to present them with honorary degrees, but this it is thought will be postponed to a special visit to be made by the distinguished African travellers to the north in October next.

Purity of Chemicals.

Mr. Barnard S. Proctor of this city has brought out a useful little "Manual of Pharmaceutical Testing, comprising simple instructions for the Testing of the Chemicals of the British Pharmacopœia, &c." Although the work is principally designed for pharmaceutists, circumstances might arise in which the question of purity in his drugs might become of the highest importance to the medical practitioner; in such a case he would find Mr. Proctor's work a valuable aid in answering the question—Is the article fit for use?

Sunderland.

Mr. Thomas Robinson, the Secretary of the Sunderland Infirmary, has written to a local paper saying that the collections on Saturday last were the best they have yet had on a Hospital Saturday.—Mr. H. Shapter Robinson has been presented by the Mayor of Sunderland with a handsome testimonial from the Monkwearmouth ambulance centre. The services of the other medical instructors were likewise highly commended at the same public meeting.

Carlisle: Death of the Coroner for East Cumberland.

On Tuesday, June 10th, the death occurred of Mr. John Carrick, the coroner for the eastern division of the county of Cumberland. Mr. Carrick, who was in his fifty-third year, had been deputy coroner and coroner for thirty years, having succeeded his father about thirteen years since; both were members of the legal profession. Seeing that it has been in legal hands so long, it might be looked upon as only fair that a medical man should obtain the vacant appointment. Formerly the appointment was in the hands of the freeholders, but now the County Council elect. The matter should be looked after by East Cumberland practitioners, and a strong candidate selected for the post, which means not only a coronership, but a principle.

South Shields Parks.

South Shields is making great advances as a popular health-resort and watering-place. The baths and sea-bathing are excellent, and the Corporation have shown great spirit and liberality in their provisions for the improvement of the place. The North and South Parks are to be opened next week; they are practically independent of each other, being separated by the Pier Promenade, in the centre of which stands the newly erected memorial to the inventors of the lifeboat. The works have been in progress since 1874, and have cost the town about £22,000. The land has been given by the Ecclesiastical Commissioners, who are the trustees; and the Right Hon. Sir John Mowbray, M.P., the chairman of the Commissioners, has consented to open the parks next Wednesday.

Newcastle-on-Tyne, June 18th.

EDINBURGH.

(FROM OUR OWN CORRESPONDENT.)

The Royal Society.

THE Council of this Society have awarded the Keith prize to Professor Letts for his researches into the organic compounds of phosphorus; the Neill prize to Mr. Robert Kidson for his researches in fossil botany; and to Professor Tait for work in connexion with the *Challenger* expedition, and for researches in physical science.

County Council Medical Appointments.

Some time ago it was known that the various medical officers of public health in the most northern of our Scottish counties had in a most exemplary spirit presented a joint letter to the newly elected County Council requesting them to consider the desirability of appointing a medical officer for the whole county who should not engage in private practice, and expressing their readiness to resign the local appointments they individually held. It is now intimated that Caithness has united with the adjoining county of Sutherland to have a conjoint medical officer of health, to whom they propose to give £400 a year, with £100 for expenses. For two comparatively poor and sparsely peopled counties the scheme appears praiseworthy, although the salary may be thought to be small enough.

The Final Examinations at the University.

The end of the long drag of the clinicals has at last been reached. The written part of the examination was held on Monday and Tuesday, and the orals commenced on Wednesday.

The School Board and Gymnastics.

At the monthly meeting of the School Board in the beginning of the week, the committee on school work intimated that it had agreed that instruction in gymnastics and calisthenics be given in some of the schools for half an hour each week on one of the evenings of attendance during next winter session. This is a step, if a somewhat faltering one, in the right direction.

Lady Students and the Poorhouse Hospital.

At the monthly meeting of the Parochial Board, held on Monday, a letter was read from the Board of Supervision approving experimentally of the admission of lady students to the poorhouse hospital. A letter was also read from the Scottish Association for the Medical Education of Women intimating the refusal of the College to recognise the poorhouse hospital for hospital practice. A good deal has been heard from time to time of the misfortune that such hospitals were not more available for clinical instruction than they are, so it would be desirable to have some further information as to the action of the College in this matter.

St. Bernard's Well.

The Public Health Committee of the Town Council, at its meeting to-day, had before it the report by the city analyst of the water of this well. He reported that the water was free from sewage contamination, but that it con-

tained only a small quantity of sulphuretted hydrogen, whereas the former sample contained a very considerable amount. The committee directed that the water be regularly examined for four weeks, and the results reported to them.

Gift to the University Union.

The Marquis of Bute has presented a handsomely bound set of Dr. Skene's works to the Union; they include "Celtic Scotland" and "The Four Ancient Books of Wales." There is still much vacant space on the shelves of the Union, and medical works are greatly valued, as the Union is largely maintained by the students in the medical faculty.

Health of the City.

The death-rate last week was 14 per 1000. Of the total mortality, 22 cases were due to diseases of the chest, and 7 to zymotic causes. The intimations for the week included 13 cases of scarlatina and 22 of measles.

Edinburgh, June 17th.

DUBLIN.

(FROM OUR OWN CORRESPONDENT.)

Dinner to Surgeon T. H. Parke.

ON Monday evening a dinner was given to Surgeon Parke, Medical Staff, at the Shelbourne Hotel, Dublin, by Surgeon-General Sinclair and the officers of the Medical Staff on the active and retired list serving in Ireland, to welcome him on his return from the Stanley Expedition. The toasts included "Our Guests," proposed by Surgeon-General Sinclair; "Our Visitors," proposed by Sir Robert Jackson, C.B., and responded to by Mr. H. Gray Croly, President of the Royal College of Surgeons; Sir John Banks, K.C.B., &c. Surgeon Parke, when recently visiting his home in Roscommon, was met at Drumsna station by a large concourse of people of his native parish, and received a hearty welcome. A torchlight procession accompanied him to the residence of his father at Clogher House, where he was presented with an address.

Dublin Main Drainage.

The high mortality of Dublin, as contrasted with other cities, is attributed by many to the unsatisfactory state of the drainage, and there can be little doubt as to the necessity of obtaining a main drainage to relieve the insanitary condition of low-lying areas. It has been suggested that much of the enteric disease which has prevailed for some years past, on the north side of the city in particular, is directly traceable to the want of sewers to allow the sewage matter from the dwellings to enter the mains rather than the wells—a system which generally prevailed on that side of the city. A proper main-drainage scheme for the city is urgently required, and must sooner or later be carried out, if the unenviably high death-rate of Dublin is to cease.

Cork District Lunatic Asylum.

The governors of the asylum held a meeting last week to consider the recent report of Drs. Plunkett O'Farrell and Courtenay, inspectors of lunatic asylums in Ireland, to which I adverted in a recent issue. The inspectors learn that post-mortem examinations are rarely held, and are of opinion that in all cases where no objection on the part of relatives exist, the cause of death should be verified, not alone for the information and instruction of the medical officers, but for the protection of the insane, and to prevent unjust charges of improper treatment being afterwards made. The condition of the male patients they regard as unsatisfactory, their dress being generally untidy, and their linen soiled. This state of things may be explained by the fact that there is no washing bath with a supply of hot water to be found in the main building. One bath in working order is in use on each side of the hospital, but this is quite inadequate, even for the demands of sick patients. A Turkish bath has been erected, but there must be found in a large asylum many who are physically unfit to use it, and a larger number with so little brain power as to render it absolutely necessary that their bodies should be washed and inspected by those in charge of them. The governors, having fully discussed the various matters in the inspector's report, unanimously adopted a resolution that certain items which came directly within the duties of the medical staff for supervision should be referred to Dr. Woods, resident medical superintendent, for his immediate attention, with directions to confer with the house committee where he may deem it necessary to do so.

Dublin, June 17th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Effects of Chloroform.

IN a recent discussion at the Academy of Medicine on the accidents due to anæsthetics, Dr. Laborde endeavoured to demonstrate experimentally at the tribune of the Academy that the beats of the heart were immediately arrested for two or three seconds when the cork of a bottle containing chloroform was placed under the nostrils. This phenomenon is not produced with the bichloride of methylene, but it is produced with ether, although less markedly than with chloroform. Professor Verneuil thought that laboratory experiments could not in any way throw light on the causes of death by chloroform, in man the most frequent being syncope. One important point that should not be lost sight of is the question of contraindications, among which Dr. Verneuil mentioned tuberculosis and heart affections. One cannot, therefore, draw any trustworthy conclusions from experiments made with healthy animals. Animals which die from chloroform, he said, always die in the same manner, and they do not die from asphyxia. Dr. Verneuil always takes the precaution of placing the compress saturated with chloroform fifteen or twenty centimetres from the mouth of the patient. The association of morphine in subcutaneous injection with the inhalation of chloroform renders it extremely difficult to rouse a patient, and the association of atropine with chloroform is very dangerous.

The Treatment of Phthisis by Heated Air.

In reference to this subject, Dr. Dujardin-Beaumetz, at a recent meeting of the Academy of Medicine, declared that it was important to remove the delusions concerning the treatment of phthisis by this means, which were entertained both by the public and by certain medical men. The first idea of Weigert, who championed this method in America, supposed the bacillus in the lungs could thus be destroyed. Mosso and Rondelli have shown that the air inhaled even at 212° F. is not, at the moment it reaches the alveoli, higher than the rectal temperature. From a clinical point of view, the same authors affirm that this method is of service in producing a species of respiratory gymnastics. Dr. Dujardin-Beaumetz adds that the experiments carried out by him in his hospital ward had given unsatisfactory results, and concludes that the hot-air treatment of such cases is positively dangerous. *Apropos* of this subject, Dr. Constantin Paul remarked that at all the mineral water stations where phthisis was treated it had been observed for a long time that when the temperature of the air became high the treatment had to be suspended, as the condition of the patients became notably aggravated.

Diuretic Effects of Grapes.

Dr. Pecholier of Montpellier has published a note on the diuretic effects of grapes which would appear to confirm the diuretic action of glucose recently brought to notice. In two cases, one a patient with cardiac disease, and the other the subject of hepatic cirrhosis with ascites, a "grape cure" was undertaken with the best results. In the former patient, notably, five pounds of grapes were daily ingested, in three parts, and the diuresis produced was much more considerable than with milk, digitalis, or iodide of potassium. This effect can only be attributed to the sugar of the juice of the grape, the other parts of the fruit having been rejected.

A Council of Medical Jurisprudence.

It is in contemplation to create a Superior Council of Medical Jurisprudence at the Ministry of Justice. The Council is to be composed of medical men and magistrates, who will be required to give their advice on the subjects of the responsibility of criminals, of suggestion and hypnotism, and of heredity. In fine, it will be a sort of Commission of Psychology and of Criminal Anthropology, which will be placed at the disposal of the courts of justice.

Death of Dr. Bertherand.

Dr. Bertherand, editor of the *Journal de Médecine et de*

Pharmacie de l'Algérie, has lately met with a tragic death. In his capacity of delegate of the Departmental Council of Hygiene he went on a tour of inspection of pharmacies in the region of Medea. He had to ford a rivulet, swollen by recent storms, the current of which was so strong that the unfortunate doctor was carried away and drowned.

Paris, June 17th.

Obituary.

JOHN G. ADAMSON, M.D. Q.U.I., J.P.

WE regret to have to announce the death of this much-respected physician, which took place at his residence, Lurgan, co. Armagh, on June 12th, at the early age of forty-three. Dr. Adamson was the son of the late Mr. John Adamson, of Ballydugan, Lurgan. After studying at the Belfast Medical School, and graduating M.D. in the Queen's University, 1872, he began practice in Ballaghy, co. Derry, but removed to Lurgan about twelve years ago, and since then he had had the leading practice in that town and district. He was medical officer of the Lurgan Workhouse and Fever Hospital, and was a J.P. for the counties of Armagh and Down. For several years it has been known that Dr. Adamson was affected with Bright's disease; this however, did not incapacitate him from work until two months ago, when, owing to advancing mitral disease and want of cardiac compensation, he was obliged to take to bed, from which he never rose. He was attended by Dr. Agnew of Lurgan, and was seen in consultation by his former teacher, Professor Cuming. Dr. Adamson was a man held in the highest esteem and respect by his fellow-townsmen. He was a magistrate whose decisions were always regarded as just and fair. Being of a retiring disposition, he took little part in public questions. Beyond his practice and his magisterial functions he devoted his spare time to the affairs of the Presbyterian Church, of which he was an elder, and in whose mission schemes and general work he took the deepest interest. He was buried in Lurgan on Saturday last.

HENRY SHAW FERGUSON, M.D.Glas.

IT is with regret we have to record the death of one of the oldest and most respected practitioners of Belfast, which took place at his residence in that city on June 16th, at the ripe age of seventy-five years. After obtaining the M.R.C.S.Eng. in 1836, and the degree of M.D.Glas. in 1837, Dr. Ferguson began practice at Doagh, co. Antrim; but forty years ago he removed from that place to Belfast, where he had since resided. Dr. Ferguson was consulting physician to the Skin Hospital, surgeon to the Belfast Charitable Institution, and consulting medical officer to the Thompson Memorial Home for Incurables, Lisburn. His practice, though not by any means an extensive one, was very select and remunerative, as he attended a number of the leading county families. For the past two years Dr. Ferguson had been in declining health, owing to cardiac failure, and for the last couple of months his death had been expected. He was a man held in the highest respect and esteem by the general public as well as by his professional brethren.

METROPOLITAN PAUPER LUNACY.—The foundation stone of the first lunatic asylum built for the accommodation of the pauper lunatics of the new County of London has been laid by the Earl of Rosebery. Mr. Martineau, chairman of the Asylums Committee, in opening the proceedings, referred to the increase of the population, an increase of some 80,000 a year, and the consequent increase of the number of lunatics from 300 to 400 a year, for which the London County Council had to provide. Lord Rosebery said it required only a simple arithmetical calculation to show from these figures that every five years they should require to build another such palace as the present. And in one sense that was the most unproductive work on which money could be laid out. It was a palace of desolation; it represented not what we admire, not what we respect, not a palace that we go to see as sightseers; it represented the wreck and decay and degradation of humanity. When the ceremony was concluded the visitors had an opportunity of inspecting the progress of the works, which are expected to be completed in two years.

Medical News.

HAMPTON COURT.—The Queen has granted a suite of apartments in Hampton Court Palace to Mrs. Keith, widow of Surgeon-Major Keith, lately on the staff of the Duke of Connaught.

ABBEY HOSPITAL, PAISLEY.—The ceremony of opening this new hospital for sick poor in the Abbey Parish, Crow-road, took place on the 10th inst. The estimated cost of the building is £8000.

A HOSPITAL FOR THE RHONDDA VALLEY.—It is announced that Colonel P. Tubervill has offered to present a site, the value of which is estimated at £500, whereon to erect a hospital in this valley, and has also contributed £100 towards the cost of the building.

MONTE GENEROSO—known as the "Rigi of Italian Switzerland," from the magnificent view it commands of the lake country beneath—is now made accessible by a mountain railway, which performs smoothly and swiftly an ascent hitherto quite formidable to the invalid by its roughness and tedium.

PRESENTATION.—The inhabitants of West Malling and neighbourhood have shown their appreciation of the services rendered by Dr. Pope, who is about to retire and leave the district, after nearly half a century spent in the active duties of his profession there, by presenting him with a cheque for 100 guineas and an illuminated address.

AFTER-CARE ASSOCIATION.—The annual meeting of this Association, which, as our readers are aware, is founded for the benefit of poor and friendless female convalescents on leaving asylums for the insane, will take place at 83, Lancaster-gate, W., on June 23rd, at 3 P.M. The Earl of Meath will preside. The secretary is Mr. H. Thornhill Roxby, Arden Lea, The Drive, Walthamstow, Essex.

MEDICO-PSYCHOLOGICAL ASSOCIATION—The next examination in England for the certificate in Psychological Medicine will be held at Bethlem Hospital, London, on July 17th, at eleven o'clock in the morning. The examination for the Gaskell Prize will take place on the following day at the same place. Candidates are requested to give fourteen days' notice to the honorary general secretary, Dr. Fletcher Beach, Darenth Asylum, Dartford.

THE VILLAGE HOSPITAL, HAMBROOK.—This institution is satisfactorily extending its usefulness. The cases admitted during the past year were sixteen in excess of 1888, and above the average number. This addition had necessarily increased the expenditure, but there was a perceptible augmentation in the payments by patients. The income was less in consequence of a decrease in the subscriptions and donations, and the disbursements had absorbed the small balance in hand at the beginning of the year, but only a slight deficit had accrued.

HOSPITAL FOR ACCIDENTS, POPLAR.—The thirty-fifth annual festival of this institution was held at the Holborn Restaurant on the 13th inst., Mr. C. H. Wigram presiding. The chairman, in proposing "Prosperity to the Poplar Hospital," remarked on the very small beginnings of the hospital and its subsequent growth to a large establishment. The in-patients treated during the past year numbered 745 and the out-patients 12,057. It is intended to erect buildings for the out-patients' department, an addition which was much needed. Subscriptions and donations amounting to £1530 were announced.

VICTORIA HOSPITAL FOR SICK CHILDREN, CHELSEA. The annual meeting of this hospital was held on the 11th inst. The Princess Louise (Marchioness of Lorne) was present. Lord Cadogan occupied the chair. He stated that land had been purchased for £980 at Broadstairs for a convalescent home in connexion with the hospital. The building would cost about £5000, of which £3000 had been subscribed. He had authority to announce that the Duke of Edinburgh would contribute to the funds, and was ready to become a vice-president of the institution. The annual report was adopted. The Duke of Edinburgh was elected a vice-president, and the secretary read the names of several noblemen as new life governors.

THE GRIGOR STATUE AT NAIRN. — The statue erected by the inhabitants of Nairn, to the memory of Dr. Grigor, of Sarkfield, was unveiled by Mr. Brodie of Idvies on the 1st inst. It is placed at the junction of Leopold-street with High-street, and from its prominent position will be an ornament to the town. It is of bronze, upwards of 7 feet in height, stands on a granite pedestal 8 feet high, and bears the following inscription:—"John Grigor, M.D. Born 1814. Died 1886."

THE SANITARY INSTITUTE.—The following arrangements have been made for the Congress and Exhibition at Brighton, which commences on Aug. 25th:—President, Sir Thomas Crawford, K.C.B., M.D.; hon. treasurer, the Mayor of Brighton; hon. secretary, Arthur Newsholme, M.D., D.P.H.; president (Section 1), Sanitary Science and Preventive Medicine, George Vivian Poore, M.D., F.R.C.P.; president (Section 2), Engineering and Architecture, Professor Roger Smith, F.R.I.B.A.; president (Section 3), Chemistry, Meteorology, and Geology, William Topley, F.R.S., F.G.S. Conference of medical officers of health: president, Arthur Newsholme, M.D., D.P.H., M.O.H. Conference of inspectors of nuisances: president, Alfred Carpenter, M.D. Lond., M.R.C.P., C.S.S. Camb. On Tuesday there will be a Conversazione in the pavilion building; on Wednesday a lecture to the Congress by W. H. Preece, F.R.S.; and on Saturday there will be excursions, and an address to the working classes by Benjamin Ward Richardson, M.D., LL.D., F.R.S. The meetings of the Congress and Exhibition will be held in the pavilion buildings.

MEDICAL DEFENCE UNION. — METROPOLITAN DIVISION.—A meeting of the Executive Committee was held at the offices of the British Medical Association, 429, Strand, on June 12th, the President, Dr. Bridgwater, in the chair. The Hon. Sec., Dr. Campbell Pope, having stated that owing to the recent successful prosecution of "Dr." Sherman the meeting to discuss the Medical Act had not been called, the committee came to the conclusion that it was better not to call the meeting at present, as the recent decision in Sherman's case by Sir John Bridge had shown that greater protection was afforded by the Act than was previously thought. Sir John Bridge had established the important principle that no man, unless legally qualified, could call himself "Dr." and practise the healing art for gain. Dr. Bateman made a statement pointing out the leading features in Sherman's case, and stated that another prosecution would be commenced shortly. Particulars of three cases of illegal practice, one with "covering," were brought forward. It was decided to lay these cases before the Central Council of the Union, with a view to prosecution and the recovery of penalties. Dr. Mead having made some observations on organisation and on the difficulties which he had experienced in deciding the boundaries of the metropolitan division and the East Anglian, where they impinged on one another, it was resolved that for the present the boundaries of the metropolitan division should be coterminous with those of the Metropolitan Counties Branch of the British Medical Association, and that Dr. Mead and Dr. Campbell Pope should prepare a scheme for the purpose of making the Union better known amongst the profession in the metropolis.

MEDICAL NOTES IN PARLIAMENT.

Delay of the Local Government Board.

IN the House of Lords, on Friday, the 13th inst., Earl Spencer called attention to the delay of the Local Government Board, which had occurred in an inquiry made by one of their inspectors on Sept. 21st, 1889, at East Haddon, Northamptonshire. Mr. Albert Pell had complained last autumn that there was a violent outbreak of diphtheria in the village near which he resided, resulting within three months in the death of thirty people out of a population of 500 persons. An inspector had been sent down, and had remained a fortnight in the district making inquiries. The local sanitary authorities were divided as to how the outbreak should be met, and the inspector's report was not received until Dec. 7th. This delay had paralysed the local authorities and hindered their action. Further, the Brixworth sanitary authorities had on Jan. 20th, 1889, made application for sanction of a loan for a new water-supply in East Haddon, but, as no answer had been given to their requisition, no action had been taken. The matter was serious, because the lives of the inhabitants were in danger. Within the last few weeks a fresh outbreak had occurred, and three persons had died. He believed the matter important, but that the Local Government Board was so overwhelmed with business that it was impossible for them to answer all the inquiries with the promptitude demanded by such cases.

The Swedish Leper.

In the House of Commons, on Thursday, the 12th inst., in reply to a question by Dr. Tanner, referring to the case of leprosy in a Swedish emigrant who was travelling to America to join her husband and six children, Sir Michael Hicks-Beach said the woman in question had been permitted to land at Hull and to pass through England as the Board of Trade had no statutory authority to examine passengers arriving in this country from abroad. The officers who had examined the woman previously to her embarkation considered her affection to be lupus, and of a non-contagious character. She had brought with her a medical certificate to that effect. Notwithstanding this, however, she and her immediate party were isolated from the rest of the passengers. He had learned from the Cunard Company that the woman had been allowed to land at Boston, and was ashore for twelve days, and that she had returned because her husband could not pay for her maintenance in the hospitals. She had been sent back to her home in Sweden under the care of a special attendant. She had been casually seen and examined by two officers of the Board of Trade, who had, however, reported that her later symptoms had none of the appearances of leprosy as understood by them.

The Sewage in the Thames Estuary.

In the House of Commons on Friday, the 13th, in reply to a question by Major Rasch, whether, owing to the deposit of London sewage in the vicinity of Nore Sand, the fishing grounds of the Thames Estuary were being injured, he would arrange for the station of a Government ship in the neighbourhood, in order that the sludge might be deposited higher up the river, according to agreement, than the Knock buoy, Sir Michael Hicks-Beach replied that no agreement such as was suggested had come officially to his knowledge, and it would be difficult to take action in the matter until it had been under the consideration of the Committee of the recently created Kent and Essex sea-fishery district, who would have power to deal with it.

THE INQUIRY INTO METROPOLITAN HOSPITALS.

On Monday, the 16th inst., the first witness the Committee had before them was Sir Edmund Hay Currie, who, in supplementing his previous evidence, said he thought that the hospitals might be removed from their present situations in crowded thoroughfares to more suitable sites on the outskirts of London. Hospital appointments should be given to the best men, irrespective of the body by whom their diplomas were granted; and the principal object to be aimed at should be the care of the sick poor rather than the future and advancement of the medical men.

Sir Henry Longley, K.C.B. (Chief of the Charity Commissioners), then explained in what way the Charity Commissioners exercised their jurisdiction over charities. He said that their functions were rather judicial than administrative, and they only acted when called upon. In so far as the hospitals were supported by voluntary subscriptions, they did not come under the jurisdiction of the Charity Commissioners. The hospital which obtained the least support from such sources was Bridewell, then came St. Bartholomew's, and then Guy's, St. Thomas's, and Bethlem. The site of a hospital could not be sold without the sanction of the Commissioners, unless it was proposed to remove the hospital to another site, in which case the governors themselves had power under a special clause in the Act to do it without obtaining the sanction of the Commissioners. They had the power of investing hospital funds, and St. George's Hospital had handed them over considerable sums for that purpose. The hospitals had come to the Charity Commissioners for leave to mortgage their property and to enable them to take in paying patients. Witness went on to say that in the case of charities of over £50 the majority of the trustees must petition in favour of any such scheme, and he then gave further details as to the way in which the Charity Commissioners could be set in motion.

On Thursday the first witness examined was Mr. Cottenham Farmer, M.R.C.S., general practitioner, who stated that the competition existing among various hospitals caused great reduction in the fees of the local practitioner, and at the same time tended to pauperise the patients. A system of discrimination as to the condition of patients had existed at Great Ormond-street and also at the Royal Free Hospital in 1875, which had considerably diminished the number of out-patients. The system had been allowed to lapse; but he believed if it had been continued there, and at the other London hospitals, no necessity for the present inquiry would have arisen. He was of opinion that 99 per cent. of the out-patients could afford to pay, and ought not to receive charitable relief. There ought to be a close scrutiny of the circumstances of the patient. He was strongly opposed to special hospitals, inasmuch as they took away many patients who could afford to pay, and who would be much better treated in their own homes. There ought to be some central body to have power to supervise and inspect the hospitals.

Mr. Frederick Corbyn, M.R.C.S., in opening his evidence, said that he had an Edinburgh diploma, which, he thought, would exclude him if he ever applied for an appointment on the staff of a London hospital. His reasons for objecting to the out-patient department of these hospitals were, in the first place, that they afforded facility for the spread of infectious and contagious diseases, they were overcrowded, and insufficient attention was therefore given to the patients. As a remedy for the evils connected with the system he suggested that a very extensive inquiry into the circumstances of all applicants for relief should be made, and he would not allow a single patient to come a second time for relief without the letter of recommendation being countersigned by some responsible person, saying that the applicant was a fit and proper object to receive the charity. The very poor he would have treated at the Poor-law infirmaries, and extend the working of these in such a manner as to give students in the fourth year an opportunity of attending such patients at their own homes, under supervision of the Poor-law officers. From the students' point of view the General Medical Council had practically condemned the out-patient departments of hospitals by enacting that the curriculum should now extend to five years instead of four, the last year of which was to be spent under the supervision of a medical man, who could show them what they could not see at hospitals. Lord Cathcart: Would you accept this as a good definition, "The business of a hospital is to lodge and cure bad cases?" The witness: No; but to lodge and treat bad and necessitous cases. In answer to Lord Zouche, the witness stated that he would propose to keep the special departments open, and spend on them the money which was wasted in the general out-patient department.

Mr. Lennox Browne, F.R.C.S., was the next witness. He stated that

he had had twenty-five years' experience in London, had held appointments in various hospitals, and was at present connected with the Central Throat and Ear Hospital in Gray's-inn-road, of which the Archbishop of Canterbury was president. He had also visited most of the hospitals in the colonies. The witness went on to state that he was opposed to the scheme which Sir Edmund Currie had proposed to their Lordships, because he did not think that doctors were more gifted than other people with philanthropy and benevolence. He considered that hospitals existed for the benefit of the sick and not for the benefit of the medical profession. The Duke of Westminster had said that the very poor and the very rich got the best medical advice; but, in his opinion, the poor gave quite as much to medical men as they got, by enabling them to acquire the knowledge requisite for treating the very rich. With regard to the provident scheme, he thought it was preposterous to ask the poor to do what the rich did not do, to pay whether they were in health or in disease. The system of letters had been entirely abolished at his hospital. He advocated the payment of small sums by those able to pay. The witness proceeded to condemn the system of having paying beds in hospitals, and maintained that they merely served to bring a monopoly of practice to the doctors connected with the hospital. He further expressed himself as in opposition to the system of Mr. Holmes, which proposed to abolish the out-patient department. The treatment given by club doctors was apt, like that of the parish doctors, to become perfunctory. He submitted statistics from his own hospital to show that the patients attending there had paid in sixteen years the sum of £12,000, and, he believed, in no instance had there been any abuse of the charity or any injury done to the patients by asking them to pay for their medicine and for their board. A great deal of jealousy existed among surgeons in general hospitals on account of the special hospitals; but he submitted tables to show that 150 physicians and surgeons of general hospitals were consulting or actual officers to special hospitals. He was sorry to say, however, that in the Medical Directory these gentlemen did not say that they were connected with these special hospitals, at the same time their names appeared in the hospital reports.

Mr. Lennox Browne's evidence will be continued at the next sitting of the Committee on Monday, the 23rd inst.

NATURAL SCIENCE TRIPOS AT CAMBRIDGE.

THE following questions were set at the May and June examinations.

HUMAN ANATOMY.

Saturday, May 24th, 1890, 9 a.m. to 12 (noon).

1. Describe the development of the human palate and of its individual parts. Give also an account of the racial and other variations of the palate.—2. Enumerate the elements from which the human organs of generation, internal and external, are developed, and give an account of their final condition in both sexes. Describe and explain any known conditions which result from an atypical development of any of these parts.—3. State all you know about the musculus sternalis, and give the various theories which have been advanced as to its morphology. Which explanation do you prefer, and for what reasons?—4. Give any instances with which you are acquainted of variations in the course or distribution of nerve fibres in the extremities. What explanation can you offer of each variation to which you refer?

Same Day, 1.30 to 4.30 p.m.

5. Discuss the evidence for the existence of additional rays in a rudimentary state in the human hand. What bearing has this evidence on the question of polydactyly?—6. Give any schemes of colours used by anthropologists for classifying skin-, hair-, and iris-tints. What are the chief difficulties met with in constructing such schemes? Give a list of the combinations met with amongst the more important races.—7. Enumerate and briefly describe the chief characters of the human skull of which use can be made for zoological and anthropological purposes.—8. Describe the special extensors of the fingers. What additional members of this group are met with amongst mammals? Which of these muscles are met with as variations in man? Discuss the morphology of this group.

Monday, May 26th, 9 a.m. to 12 (noon).

9. Describe the vestibule and semicircular canals of the ear and their contents. What nerve supplies these organs, and how does it terminate within the central nervous system?—10. Give instances showing that modern anatomy retains the impress of Galen's work. Name anatomists by whom Galenic errors have been corrected, and mention the cases in point.—11. Give an account of the internal architecture of a long bone. Compare the disposition of its trabeculæ with that of the ties and struts of an iron structure, and explain the reasons for the differences which you notice.—12. Describe the posterior longitudinal bundle, and also the posterior commissure of the brain. What regions of the brain do the fibres of these two tracts respectively connect?—13. Mention muscles the attachments of which show distinct traces of an alteration in disposition, and give reasons for these alterations.

Same Day, 1.30 to 4.30 p.m.

14. What is the "arcuate convolution of Arnold"? Give an account of the changes which it undergoes in development.—15. Describe the lymphatic system of the eye.—16. Describe all the muscles of the face which act upon the skin, and state the effects upon expression of their separate and combined action. Can you make any morphological distinctions between the muscles?—17. Give an account of the development and adult structure of the septum of the nose.

PRACTICAL HUMAN ANATOMY.

Saturday, June 7th, 10 a.m.

1. Make a dissection to show the tendons and ligaments of a [illegible] with their connexions and sheaths. Mount the preparation [illegible] and write a key to it.—2. Describe the fœtal bone assigned to you.—3. Determine the cranial capacity of the skull marked A, the horizontal cephalic index of B, and the extent and nature of the prognathism of C. 4. Examine the specimens A to F. Write a brief account of each specimen, pointing out its principal peculiarities.

METROPOLITAN ASYLUMS BOARD.

Return of Patients remaining in the several Fever Hospitals of the Board at midnight on June 17th, 1890.

Hospital.	Beds occupied.						Total accommodation.
	Scarlet fever.	Diphtheria.	Typhus fever.	Enteric fever	Other diseases.	Total.	
Eastern Hospital	214	22	..	13	..	249	442
North-Western Hospital	93	25	..	7	..	125	415
Western ,,	117	12	..	7	2	138	262
South-Western ,,	97	..	..	..	..	97	330
South-Eastern ,,	164	9	3	15	1	192	462
Northern ,,	415	32	..	6	..	453	884
Totals	1100	100	3	48	3	1254	2515

SMALL-POX.—*Atlas* hospital ship, 7.

BOOKS ETC. RECEIVED.

ALCAN, FÉLIX, Paris.

Les Bactéries et leur Rôle dans l'Étiologie, l'Anatomie, et l'Histologie Pathologiques des Maladies Infectieuses. Par A. V. Cornil et V. Babès. Troisième Édition, refondue et augmentée. Tomes Premier et Second. 1890.

ALLEN, W. H., & Co., Waterloo-place, London.

Health Springs of Germany and Austria. By F. O. Buckland, B.A. Oxon, M.B. Edin. 1890. pp. 132.

ARNOLD, EDWD., Warwick-square, London.

The Modern Malady; or, Sufferers from "Nerves." By Cyril Bennett. With a Preface by H. Tibbits, M.D., F.R.C.P.E. 1890. pp. 184. Price 6s.

BAILLIÈRE, TINDALL, & COX, King William-street, Strand, London.

The Throat and Nose, and their Diseases. By Lennox Browne, F.R.C.S.E. With 129 Illustrations and 235 Engravings, designed and executed by the Author. Third Edition, revised and enlarged. 1890. pp. 716.

Selected Subjects in connexion with the Surgery of Infancy and Childhood, being the Lettsomian Lectures, delivered by Edmund Owen, F.R.C.S.E., at the Medical Society of London, 1890. pp. 92.

Practical Manual of Diseases of Women and Uterine Therapeutics. For Students and Practitioners. By H. Macnaughton Jones, M.D. Fourth Edition. 1890. pp. 666.

The Book of Climates. Acclimatisation, Climatic Diseases, Health Resorts and Mineral Springs, Sea Sickness, Sea Voyages, and Sea Bathing. By D. H. Cullimore, M.D., M.R.C.P. Lond. and Dub. 1890. pp. 266.

Medical Law for Medical Men: their Legal Relations shortly and popularly explained, with chapters concerning Dentists, Chemists, and Midwives. By Percy Clarke, LL.B., and C. Meymott Tidy, M.B., F.C.S. 1890. pp. 157.

BICKERS & SON, Leicester-square, London.

Induction and Deduction. A Historical and Critical Sketch of successive Philosophical Conceptions respecting the Relations between Inductive and Deductive Thought, and other Essays. By Constance C. W. Naden. Edited by R. Lewins, M.D., Army Medical Department. 1890. pp. 202.

BLACKIE & SON, Old Bailey, London, E.C.

Blackie's Modern Cyclopædia of Universal Information. A Handy Book of Reference on all Subjects, and for all Readers. Edited by Chas. Annandale, M.A., LL.D. With Pictorial Illustrations and Maps. Vol. VI.: Mon—Pos. 1890. pp. 512.

BLADES, EAST, & BLADES, Abchurch-lane, London,

The Annals of the Barber-Surgeons of London. 1890. pp. 623.

DOIN, O., Paris.

Leçons sur les Maladies du Larynx. Par le Dr. E. J. Moure; recueillies et rédigées par le Dr. M. Natier. 1890. pp. 500.

GRIFFIN, CHAS., & Co., Exeter-street, Strand, London.

A Treatise on Rheumatism and Rheumatoid Arthritis. By A. E. Garrod, M.A., M.D. Oxon., M.R.C.P. With Charts and Illustrations. 1890. pp. 342.

KEGAN PAUL, TRENCH, & Co., Ludgate-hill, London.

Character as seen in Body and Parentage; with a Chapter on Education, Career, Morals, and Progress. By F. Jordan, F.R.C.S. New Edition. 1890. pp. 111.

LAWRIE, THOS., Paternoster-row, London.

The Philosophy of Clothing. By W. M. Williams, F.R.A.S., F.C.S. 1890. pp. 160.

LEWIS, H. K., Gower-street, London.

Dental Surgery for Medical Practitioners and Students of Medicine. By A. W. Barrett, M.B. Lond., M.R.C.S. Second Edition, with Illustrations. 1890. pp. 136.

Hygiene of Childhood. Suggestions for the care of Children after the period of Infancy to the Completion of Puberty. By Francis H. Rankin, M.D. 1890. pp. 140.
The Shadow-test in the Diagnosis and Estimation of Ametropia. By W. M. Beaumont. 1890. pp. 40.

MACMILLAN & Co., London.
Gray's Botanical Text-book. Vol. II.: Physiological Botany; containing (1) Outlines of the Histology of Phænogamous Plants; (2) Vegetable Physiology. By Geo. L. Goodale, A.M., M.D. Sixth Edition. 1890.

NISBET, JAS., & Co., Berners-street, London.
What Cheer O? or the Story of the Mission to Deep-sea Fishermen. By Alex. Gordon. Introductory Note by Thos. R. Miller, Esq., Chairman of the Mission. Illustrated. 1890. pp. 256. Price 1s.

PUBLISHED AT THE OFFICES OF THE CHEMIST AND DRUGGIST, Cannon-street, London.
A Manual of Pharmaceutical Testing, for the Man of Business and his Assistants. By Barnard S. Proctor, F.I.C. 1890. pp. 188.

STEINHEIL, G., Rue Casimir-Delavigne, Paris.
Formulaire Aide-Mémoire de la Faculté de Médecine et des Médecins des Hôpitaux de Paris. Par le Dr. Fernand Roux. 1890. pp. 320.

TAYLOR & FRANCIS, Red Lion-court, Fleet-street, London.
A Descriptive Catalogue of the Pathological Museum of the London Hospital. 1890. pp. 628.

THE GAZETTE PRINTING COMPANY, Montreal.
The Doctor in Canada: his Whereabouts, and the Laws which govern him. A ready Book of Reference. By Robert W. Powell, M.D. (Ottawa). 1890. pp. 342.

Ten Years' Compulsory Notification of Infectious Disease in Edinburgh; by Harvey Littlejohn, M.A., M.B., C.M. (Oliver & Boyd, Edinburgh, 1890).—Waiting for the Boom: a Narrative of Nine Months spent in Johannesburg; by E. E. Kennedy (Effingham Wilson & Co., London, 1890); price 6d.—Rapport sur un Médicament Nouveau Spécifique de la Fièvre Intermittente et des Accidents Paludéens; du Docteur J. Valude.—Oxford, Natural Science and the Faculty of Medicine; by W. Probyn-Nevins (Slatter & Rose, Oxford; and Simpkin, Marshall, & Co., London); price 1s.—London County Council: a Review of the first year's work of the Council, in a series of Addresses delivered by the Earl of Rosebery, Chairman of the Council, in April and May, 1890 (J. Truscott & Son, Suffolk-lane, London).—The present Epidemic of so-called Influenza; by David J. Brakenridge, M.D., F.R.C.P.E. (Oliver & Boyd, Edinburgh, 1890).—The Asclepiad, No. 26, Vol. VII.; by Benjamin Ward Richardson, M.D., F.R.S., 1890 (Longmans, Green, & Co., London); price 2s. 6d.—The "J. E. M." Guide to Davos-Platz; edited by J. E. Muddock, F.R.G.S.; fourth edition, tenth year of publication (Simpkin, Marshall, & Co., London).—L'Intoxication Chronique par la Morphine et ses Diverses Formes; par le Dr. L. R. Régnier (E. Lecrosnier et Babé, Paris, 1890).—Contribution à l'Étude de la Syringomyélie; par le Docteur J. Bruhl (A. Delahaye et Lecrosnier, Paris, 1890).—Oxford and Modern Medicine. A Letter to Dr. Jas. Andrew, M.D Oxon., F.R.C.P. Lond., by Sir Henry W. Acland, K.C.B., F.R.S. (Henry Frowde, London and Oxford, 1890).—On Localised Peritonitis: its Etiology, Diagnosis, and Treatment; by John Wallace, M.D. Edin. (Baillière, Tindall, & Cox, London, 1890).—New Holidays in Essex; edited by Percy Lindley (125, Fleet-street, London); price 6d.—The Wealth of India and the Hindrances to its Increase; by Wm. Birkmyre (M'Naughtan & Sinclair, Glasgow).—Elizabeth Rossiter, founder of Country Life for Poor Town Children: a Memorial (Wm. F. Edwin, Huntingdon, 1890); price 1s.—India's Opium Revenue: What it is, and how it should be dealt with; by Jos. G. Alexander, LL.B. (P. S. King & Son, London, 1890); price 2d.—Substitutes for Opium Revenue; by J. G. Alexander, LL.B. (P. S. King & Son, London, 1890); price 2d.—Maladie de la Peau, dite Maladie de Paget; par le Dr. Louis Wickham (G. Masson, Paris, 1890).—Öffentliche Gesundheitswesen in Berlin, 1886-1888; von Dr. M. Pistor (Th. Chr. Fr. Enslin, Berlin, 1890).

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

ABERCROMBIE, JOHN, M.D., F.R.C.P., has been appointed Honorary Consulting Physician to the Foundling Hospital, vice Dr. Julius Pollock, deceased.
ANDERSON, T., M.D. Lond., has been appointed Consulting Physician to the York Lunatic Asylum, vice Matterson, deceased.
COURTENAY, K. J., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer for the Second District and the Workhouse, Wimborne and Cranborne Union.
CROFT, EDWD. OCTAVIUS, M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Surgeon to the Hospital for Women and Children, Leeds, vice John Horsfall, F.R.C.S., resigned.
DOVASTON, MILWARD E., M.R.C.S., has been appointed Honorary Medical Officer to the St. Pancras Almshouses, N.W., vice Dr. Coode Adams, resigned.
GABRIEL, WM. M., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer for the Workhouse of the Keighley Union, vice Russell, resigned.
GALE, ARTHUR D., L.R.C.P. Lond., M.R.C.S., has been reappointed Medical Officer for the Fifth District of the Ecclesall Bierlow Union.
GEORGE, CHAS. F., M.R.C.S., has been reappointed Medical Officer for the Blyborough District of the Gainsborough Union.
HALL, JOHN C., M.B., B.Ch. Irel., has been appointed Medical Officer to the Monaghan Infirmary.
HAVELOCK, JOHN G., M.B., C.M. Edin., has been appointed First Assistant Medical Officer of the Royal Lunatic Asylum, Montrose, vice Chambers, resigned.
HINDLE, F. T., L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer for the Doncaster and Hemsworth Unions.
HOWDEN, JAS. C., M.D. Edin., has been reappointed Medical Superintendent of the Royal Lunatic Asylum, Montrose.
JESSOP, T. R., F.R.C.S., has been appointed Consulting Surgeon to the Leeds General Infirmary.
JOHNSTON, DAVID, M.D. Aber., has been reappointed Consulting Physician to the Royal Lunatic Asylum and Infirmary, Montrose.
KEY, ANDREW, M.D. Edin., has been reappointed Medical Officer of the Montrose Infirmary.
LAWRENCE, SAMUEL, M.D. St. And., has been reappointed Consulting Physician to the Royal Lunatic Asylum and Infirmary, Montrose.
MOLONY, P. J., L.R.C.S. Irel., L.K.Q.C.P. Irel., &c., has been appointed Clinical Assistant to the Central Throat and Ear Hospital, Gray's-inn-road.
MUTER, JOHN, F.R.S. Edin., F.I.C., F.C.S. Lond., has been reappointed Public Analyst for the County of Lincolnshire.
OSBORN, F., M.R.C.S., has been appointed Assistant Medical Superintendent of the Infirmary of the Parish of Paddington.
RANDALL, PHILIP N., M.B. Lond., has been appointed Medical Officer to the Chatham Hospital.
RICHMOND, RICHARD, M.B., C.M. Edin., has been appointed Medical Officer for the Bardfield District of the Dunmow Union, vice Ronald resigned.
STOKES, ERNEST WILSON, L.K.Q.C.P.I., L.R.C.S.I., & L.M. Rotunda, has been reappointed Resident Medical Officer to the North London Hospital for Consumption and Diseases of the Chest, Hampstead.
STONE, VALENTINE, M.D. St. And., has been reappointed Medical Officer of the Montrose Infirmary.
SULLIVAN, E. J. H., M.D., M.Ch. Irel., has been appointed Medical Officer for the Great Houghton District, Hemsworth Union.
WARD, EDWD., M.B., B.C., M.R.C.S., has been appointed Honorary Surgeon to the Leeds General Infirmary, vice Jessop.
WATTS, WILLIAM F., M.R.C.S., has been reappointed Medical Officer of Health for the Borough of Dewsbury.
WOOD, GEORGE, M.D. Edin., has been appointed Medical Officer for the Second District of the Hemsworth Union.
WRIGHT, THOS. N., L.R.C.S., L.M. Irel., has been appointed Assistant Medical Officer to the Infirmary, Woolwich Union.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement.

BOOTLE BOROUGH HOSPITAL.—Assistant House Surgeon and Dispenser. Salary £40 per annum, with board, lodging, and washing.
BOROUGH HOSPITAL, Birkenhead.—House Surgeon's Locum for about six weeks from the middle of July. (Apply to the House Surgeon.)
CHARING-CROSS HOSPITAL, London.—Medical Registrar and Assistant Anæsthetist. The former appointment carries a salary of £40 a year.
GENERAL HOSPITAL, Birmingham.—Assistant House Surgeon for six months. No salary, but residence, board, and washing provided.
GORDON HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM.—Assistant Surgeon.
HOSPITAL FOR WOMEN, Soho-square, London.—House Physician for six months. Salary £30, with board &c.
INFIRMARY FOR CONSUMPTION AND DISEASES OF THE CHEST AND THROAT, 26, Margaret-street, London, W.—Honorary Physician in Ordinary, three Honorary Visiting Physicians, and one Honorary Surgeon.
LANGPORT UNION.—Resident Medical Officer for the 3 A and B (Curry Rivel) District. Salary £36 per annum, with additional fees for vaccination and other extras, the whole amounting to about £100 yearly. (Apply to Mr. W. Louch, the Clerk, Langport.)
LINCOLN ODDFELLOWS' MEDICAL INSTITUTION.—Junior Medical Officer for five months. Salary at the rate of £120 per annum (out-door).
LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon.
MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer for the Fever Hospital at Monsall. Remuneration £250 per annum, with board and residence.
METROPOLITAN ASYLUMS BOARD.—Clinical Assistant at the Eastern Fever Hospital, The Grove, Homerton, E., for three months. Remuneration—board, furnished apartments, and washing.
ROYAL ALBERT HOSPITAL, Devonport.—Assistant House Surgeon for six months. Board, lodging, and washing, but no salary.
SUFFOLK GENERAL HOSPITAL.—Dispenser. Salary £40 per annum, with board, lodging, and washing. (Apply to the Secretary, Bury St. Edmunds.)
WELLINGBOROUGH AND DISTRICT MEDICAL INSTITUTE.—Qualified Medical Man to take charge of the same, and attend on members, sheir wives and families. Salary £280 per annum (exclusive of accouchement fees, at present about £20 per annum), in addition to dwelling-house, with good rooms on ground floor, six bedrooms, bathroom, &c. Surgery, coachhouse, and stable on premises, all free of rent, taxes, and repairs. Surgeon to provide his own horse and trap or coaching. (Apply to the Secretary, Jackson's-land, Wellingborough.)
WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL, Wolverhampton.—Resident Assistant for six months. Board, lodging, and washing provided.

Births, Marriages, and Deaths.

BIRTHS.

COLBOURNE.—On June 12th, at Cleve-road, N.W., the wife of L. Colbourne, M.D. (Buenos Ayres), of a daughter.

HARLAND.—On June 14th, the wife of Henry Harland, M.D., of Eastridge Court, Ryde, Isle of Wight, of a son.

LEWIS.—On June 16th, at Pontypridd, the wife of B. Morgan Lewis, M.R.C.S., L.R.C.P. Lond., of a son.

OLIVER.—On June 12th, at Gordon-square, London, the wife of James Oliver, M.D., F.R.S. Edin., of a son.

SEYMOUR.—On June 10th, at South Camp, Aldershot, the wife of Dr. Seymour, Army Medical Staff, of a daughter.

STEEL.—On June 11th, at Nevill-street, Abergavenny, the wife of Wm. Dyne Steel, M.D., of a son.

WARNER.—On June 13th, at Brechin-place, Gloucester-road, S.W., the wife of Frederick Ashton Warner, F.R.C.S.E., of a daughter.

MARRIAGES.

BRIGHTMAN—BASS.—On June 11th, at the Abbey Church, Minster, in Sheppey, Frank Brightman, M.R.C.S., L.R.C.P. Lond., of Hampden House, Broadstairs, to Edith Marian, the younger daughter of Edward James Bass, of the Bank House, Sheerness-on-Sea.

BROWN—FOSTER.—On June 3rd, at St. James', Emsworth, by the Rev. W. P. Norris, Martin Luther Brown, M.D., second son of William Brown, J.P., of Exeter, to Victoria Louisa Augusta Foster, eldest daughter of the late William Foster, of Emsworth, Hants.

EDWARDS—DRIVER.—On June 14th, at St. Peter's, Cranley-gardens, by the Rev. J. F. Downes, F. Swinford Edwards, F.R.C.S., of Wimpole-street, W., to Evelyn Dudley, only daughter of S. Dudley Driver, Esq., of Westgate-terrace, South Kensington.

GARDNER—MORGAN.—On June 17th, at St. Mark's, Tollington-park, London, N., James Clark Gardner, L.R.C.P., M.R.C.S., to Kathleen, youngest daughter of R. W. Morgan, Esq., of Rouen and South Wales.

GIDDINGS—LAMB.—On June 4th, at the Parish Church of St. Mary's, Battersea, George T. Giddings, M.D., of Hillworth, Beckenham, S.E., to Ada, second daughter of W. Lamb, Esq., of Holmwood, Nightingale-lane, Clapham, S.W.

HAWKINS—TONGE.—On June 10th, at St. Mary Magdalene's, Paddington, by the Rev. Sir John Cæsar Hawkins, Bart., Herbert Cæsar Hawkins, M.R.C.S., L.R.C.P., of Corfe Castle, Dorset, son of Villiers W. Cæsar Hawkins, of 8, Linden-gardens, W., to Florence Margaret, eldest daughter of William J. Tonge, of Morant's Court, Sevenoaks, and 7, Upper Westbourne-terrace.

HINTON—PERCIVAL.—On June 11th, at Christ Church, Clifton, Brigade-Surgeon J. Hinton to Augusta Jane, third daughter of the late Thomas Percival, Esq., of Whitby, Yorks, and Arlesey, Bury, Beds.

HULBERT—HINCHLIFF.—On June 14th, at Christ Church, Ealing, Henry Harper Hulbert, B.A., M.R.C.S., L.R.C.P., &c., of Ely, Cambs., eldest son of T. Hulbert, of Bath, to Lilian Mary, younger daughter of George Hinchliff, of Ealing.

MARSH—JACKSON.—On June 11th, at St. James's Church, Brighton, Charles James Marsh, M.R.C.S., L.R.C.P., of Yeovil, to Emily Sarah, eldest daughter of the late Alexander Jackson, of Chiswick.

MCGIBBON—SHIRTLIFF.—On June 11th, at St. Peter's, Norbiton, Dr. John McGibbon, of West Derby, Lancashire, to Lucy, daughter of Dr. Shirtliff, of Elm Side, Kingston-on-Thames.

MILLIGAN—ANDERSON.—On June 17th, at the Presbyterian Church, Marlborough-place, St. John's Wood, London, William Milligan, M.B., C.M., Manchester, to Bertha Warden, daughter of James Anderson, Esq., Frognal-park, London.

PAGET—BRANDRETH.—On June 12th, at St. Stephen's, East Twickenham, by the Rev. Canon Bourne and the Rev. J. P. Brandreth, Charles Edward, son of Sir George E. Paget, K.C.B., of Cambridge, to Ethel Pilkington, daughter of the late Rev. Canon Brandreth, of Standish Rectory, Lancashire.

SUTHERLAND—ROSS.—On May 21st, at the Cantonment Church, Rangoon, by the Right Rev. the Lord Bishop of Rangoon, William Hope Sutherland, M.B., C.M. Edin., eldest son of the late John Sutherland, M.D., Inspector-General of Hospitals, Bengal Army, to Mary Howard Maltby Ross, daughter of Surgeon-Major Hamilton Ross, M.D., Madras Army (Retired).

DEATHS.

DENE.—On June 9th, at Tatham House, Bishops Lydeard, Taunton, Wavell Arundell Dene, M.R.C.S., aged 69.

GOODCHILD.—On June 11th, at Dennington-park-road, N.W., Arthur Goodchild, M.R.C.S., aged 63.

KEETLEY.—On June 10th, at Victoria-street, Great Grimsby, Thomas Bell Keetley, M.R.C.S., Alderman and J.P. of the Borough, aged 68.

PAINE.—On June 13th, at Corbett House, Stroud, William Henry Paine, M.D., F.R.C.P., F.G.S., &c., J.P., Gloucestershire, aged 66.

PALLOTTA.—On May 31st, at S. Guiliano, Italy, Dr. Girolamo Pallotta, in his 34th year.

PHILPOT.—On June 11th, at Barrow-on-Humber, Lincolnshire, Fredrick Philpot, M.R.C.S.

PRIDHAM.—On June 16th, at Cromwell-crescent, S.W., Charles William Pridham, F.R.C.S., M.R.C.P. Edin., late of Paignton, and eldest son of the late F. L. Pridham of Bideford.

ROSE.—On June 11th, at Newport-road, Cardiff, W. J. Rose, M.B. Edin., aged 37.

TANNER.—On June 10th, at Greystone Lodge, Southsea, Brigade-Surgeon Wm. Tanner, Army Medical Staff, youngest son of the late Thomas Tanner, formerly of the Army Medical Board, St. James's-place.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week.

Monday, June 23.

CHARING-CROSS HOSPITAL.—Operations, 3 P.M.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations daily at 10 A.M.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1.30 P.M and each day at the same hour.

CHELSEA HOSPITAL FOR WOMEN.—Operations, 2.30 P.M.; Thursday, 2.30

ST. MARK'S HOSPITAL.—Operations, 2.30 P.M.; Tuesday, 2.30 P.M.

HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M., and on Thursday at the same hour

METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.

ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.

CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and each day in the week at the same hour.

UNIVERSITY COLLEGE HOSPITAL.—Ear and Throat Department, 9 A.M.; Thursday, 9 A.M.

LONDON POST-GRADUATE COURSE.—Royal London Ophthalmic Hospital, Moorfields: 1 P.M., Mr. Marcus Gunn: External Diseases of the Eye. Hospital for Sick Children, Gt. Ormond-st.: 4 P.M., Mr. W. Arbuthnot Lane: Complications of Disease of the Middle Ear.

ST. PETER'S HOSPITAL FOR STONE, &c.—4 P.M. Mr. Reginald Harrison: The Selection and Use of Catheters and other Urethral Instruments.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Dr. William Hunter: Ptomaines, their Nature and Actions.

Tuesday, June 24.

KING'S COLLEGE HOSPITAL.—Operations, 2 P.M.; Fridays and Saturdays at the same hour.

GUY'S HOSPITAL.—Operations, 1.30 P.M., and on Friday at same hour. Ophthalmic Operations on Monday at 1.30 and Thursday at 2 P.M.

ST. THOMAS'S HOSPITAL.—Ophthalmic operations, 4 P.M.; Friday, 2 P.M.

CANCER HOSPITAL, BROMPTON.—Operations, 2 P.M.; Saturday, 2 P.M.

WESTMINSTER HOSPITAL.—Operations, 2 P.M.

WEST LONDON HOSPITAL.—Operations, 2.30 P.M.

ST. MARY'S HOSPITAL.—Operations, 1.30 P.M. Consultations, Monday, 2.30 P.M. Skin Department, Monday and Thursday, 9.30 A.M. Throat Department, Tuesdays and Fridays, 1.30 P.M. Electro-therapeutics, same day, 2 P.M.

LONDON POST-GRADUATE COURSE.—Bethlem Hospital: 2 P.M., Dr. R. Percy Smith: Legal Relations of Insanity.—Hospital for Diseases of the Skin, Blackfriars: 4 P.M., Mr. Jonathan Hutchinson: Urticarial Affections.

Wednesday, June 25.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.

MIDDLESEX HOSPITAL.—Operations, 1 P.M. Operations by the Obstetric Physicians on Thursdays at 2 P.M.

ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour. Ophthalmic Operations, Tuesday and Thursday, 1.30 P.M. Surgical Consultations, Thursday, 1.30 P.M.

ST. THOMAS'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour.

LONDON HOSPITAL.—Operations, 2 P.M. Thursday & Saturday, same hour.

SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2.30 P.M.

GREAT NORTHERN CENTRAL HOSPITAL.—Operations, 2 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; Skin Department, 1.45 P.M.; Saturday, 9.15 A.M.

ROYAL FREE HOSPITAL.—Operations, 2 P.M., and on Saturday.

CHILDREN'S HOSPITAL, GREAT ORMOND-STREET.—Operations, 9.30 A.M.; Surgical Visits on Wednesday and Saturday at 9.15 A.M.

LONDON POST-GRADUATE COURSE.—Hospital for Consumption, Brompton: 4 P.M., Dr. Robert Maguire: The Therapeutics of Phthisis.—Royal London Ophthalmic Hospital: 8 P.M., Mr. A. Quarry Silcock: Ophthalmoscopic Cases.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Dr. William Hunter: Ptomaines, their Nature and Actions.

Thursday, June 26.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M. Surgical Consultations, Wednesday, 1.30 P.M. Ophthalmic Operations, Friday, 1.30 P.M.

CHARING-CROSS HOSPITAL.—Operations, 2 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; Ear and Throat Department, 9 A.M.

LONDON POST-GRADUATE COURSE.—National Hospital for the Paralysed and Epileptic: 2 P.M., Mr. R. Brudenell Carter: Ocular Symptoms in Nervous Diseases.—New Infirmary, Paddington: 4 P.M., Mr. J. Hutchinson: Clinical Lecture on Surgical Cases. 5 P.M., Dr. Savill: Pathological Demonstrations.

Friday, June 27.

ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

LONDON POST-GRADUATE COURSE.—Bethlem Hospital: 11 A.M., Dr. R. Percy Smith: Clinical Demonstration.—Hospital for Consumption, Brompton: 4 P.M., Dr. Robert Maguire: The Therapeutics of Phthisis.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Dr. William Hunter: Ptomaines, their Nature and Actions.

Saturday, June 28.

MIDDLESEX HOSPITAL.—Operations, 2 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; and Skin Department, 9.15 A.M.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Stewart's Instruments.)

THE LANCET Office, June 19th, 1890.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
June 13	30·01	N.E.	55	54	95	63	53	39	Raining
,, 14	30·36	N.	56	51	94	65	50	·04	Cloudy
,, 15	30·40	N.W.	56	52	87	67	52	..	Overcast
,, 16	30·27	S.W.	61	57	116	77	56	..	Cloudy
,, 17	30·04	W.	57	55	105	68	55	·07	Raining
,, 18	30·09	W.	58	54	110	71	51	·02	Cloudy
,, 19	30·11	N.W.	63	57	116	71	56	..	Cloudy

Notes, Short Comments, & Answers to Correspondents.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

All communications relating to the editorial business of the journal must be addressed "To the Editors."

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *to be addressed "To the Publisher."*

We cannot undertake to return MSS. not used.

SOCIETY OF APOTHECARIES.

A PETITION has reached us addressed to the Worshipful Master, Wardens, and Court of Assistants of the Society of Apothecaries, praying, in view of the proposed new scheme for the admission of members to the rights and privileges of the Society, that the Court of Assistants will be pleased to allow the details of the scheme to be placed before the Livery and Yeomanry before they definitely settle and publish it. Those desirous of signing this petition, and whom it may not have reached, can obtain copies for signature by applying to Mr. Albert Benthall, M.S.A., Cobham Lodge, Clarendon-road, Southsea.

G. H.—Ovariotomy was performed upon women many times before any experiment upon the lower animals was made. The anti-vivisection party assert that nothing has been gained by the experiments upon dogs, rabbits, and guinea-pigs, which led Sir Spencer Wells to urge the advantage of uniting the two surfaces of peritoneum divided in the abdominal incision. But a large majority of operators agree with him, and follow his example.

P. F. O'H.—The question can only be decided by the terms of the agreement.

Cyclops has forgotten to enclose his card.

NAPHTHOL IN TYPHOID FEVER.

To the Editors of THE LANCET.

SIRS,—On the 28th ult. there came to me a man suffering from well-marked typhoid fever of ten days' standing. At that moment I was reading in THE LANCET of the 24th ult. your annotation on "The Antiseptic Treatment of Typhoid Fever," in which β-naphthol was extolled. Thinking this a good case in which to try the remedy, I sent the man home to bed, and ordered him β-naphthol in four-grain doses every third hour. The medicine was given in capsules. Suffice it to say, this man's symptoms, which were very severe and well-marked, at once began to ameliorate, and he is to-day sitting up, convalescent. There can be no doubt about the marked good effect of naphthol in typhoid, as also in summer diarrhœa and dysentery.

I am, Sirs, yours faithfully,

A. IRWIN BOLTON, M.B., A.B.

Kustendjie, Roumania, June 7th, 1890.

TRICYCLES.

To the Editors of THE LANCET.

SIRS,—I should feel glad if some of your many readers would give me their opinion of the best tricycle for a country with good roads and not very hilly.

I am, Sirs, yours faithfully,

June 17th, 1890. AN OLD SUBSCRIBER.

MEDICAL ETIQUETTE AND THE INTERESTS OF PATIENTS.

Mr. Worthington, J.P., a layman, asks for information about medical etiquette, and declares that it is often used to the detriment of patients, and as a hindrance to their having the benefit of other opinions. When so used it is abused. Every patient is entitled to have every opinion he cares to have, so long as he treats his own medical adviser with the "honour due to a physician."

T. E. K.—In ancient Greece, even before the Hippocratic era, the choice of the medical calling was open to every free-born citizen. The members of that calling fell naturally into two divisions—the duly qualified and the non-qualified or irregular. The latter corresponded to the bonesetters of our own day, and practised in cases of fracture, dislocation, and especially in those which the higher class of practitioners thought beneath them—cases, to wit, of lithotomy and the radical cure of hernia, which (according to Haeser) the duly qualified of that time held aloof from, "probably because such operations were apt to result in loss of generative power." Even now, says the same author, in secluded valleys of Epirus, there are families living in which the skilled treatment of fractures and dislocations, of vesical calculus, &c., is hereditary, and the members of these families travel throughout the East as practitioners of the special forms of surgery referred to.

W. G.—The article named is a proprietary preparation of coal tar.

WHEN IS A CHILD VIABLE?

To the Editors of THE LANCET.

SIRS,—In reference to the above question the following case may be of some interest.

In January of last year I attended a lady during her first pregnancy. She had had lead poisoning, was suffering from anasarca, and the urine contained a large quantity of albumen. About a fortnight before the completion of the seventh month she had a severe convulsion, and I induced premature labour and delivered her by forceps of a male child, weighing one week after birth 3lb. 3½ oz.; a month later he weighed 4 lb. 11 oz., at six months 8 lb. 1 oz., and when a year old he had just reached a stone in weight. For two or three weeks after birth he was kept wrapped in cotton-wool and surrounded by hot-water bottles. Feeding was by cow's milk and water.—I am, Sirs, yours obediently,

Huddersfield, June, 1890. JOHN IRVING.

THE PRODUCTION OF OXYGEN GAS.

THE Secretary of "Brin's Oxygen Co.," Victoria-street, Westminster, writes to us as follows:—

"In your issue of the 7th inst. I notice a letter from Dr. Reginald Eager, calling attention to the fact that oxygen gas can be obtained from a company in Victoria-street, Westminster, at 2*d.* per sixty cubic feet. As Dr. Eager evidently refers to this company, will you allow me to point out that although we have succeeded in producing oxygen by our method at a mere fraction of the cost of the old-fashioned process, we are not yet able to compress it into cylinders at a pressure of 120 atmospheres and sell it at 2*d.* per sixty feet? Our prices vary from 4*d.* to 2*d.* per cubic foot, according to the quantity purchased. The oxygen is extracted from the atmosphere, and is therefore absolutely free from chlorine or deleterious matter of any kind."

Mr. John Pitney Aston is thanked for his communication on homœopathy and the action of the College of Physicians in interdicting homœopathic literature. Mr. Aston's letter is most courteous and reasonable in its tone, though too long for our space. The College of Physicians will do wrong if it excludes any well ascertained facts or any well executed observations in physiology or therapeutics. We are sure it will not do so. Let homœopathy announce a well-attested cure for cancer to-morrow, and a score of Fellows will try it the next day. But to put the homœopathic label on facts is to court neglect of them. Truth needs no such label.

Mr. J. Barker Smith.—The subject is very vague, and we are not disposed to give it forensic importance in its present state.

WHITE OR GREY.

To the Editors of THE LANCET.

SIRS,—I have a patient whose hair is turning grey slowly but surely. The lady, strange to say, rather admires the transformation, and has asked me to prescribe something for her that would hasten the change. Perhaps some of your readers could help me out of the difficulty.

I am, Sirs, yours truly,

June, 1890. SENEX.

WAGE LIMIT.

To the Editors of THE LANCET.

SIRS,—Will any of the readers of THE LANCET let me know if they are aware of the existence of a rule referring to the "wage limit" which debars applicants from receiving in-patient medical relief at the voluntary hospitals? I do not refer to the "wage limit" for out-patients.

I am, Sirs, yours faithfully,

Liverpool, June 14th, 1890. R. R. RENTOUL, M.D.

*** We are not aware of any such rule.—ED. L.

THE DANAHER FUND.

THE Treasurer of the above fund (Mr. Edward East, 16, Upper Berkeley-street, W.) begs to acknowledge the following subscriptions. The necessity for help is as great and pressing as ever.

Already acknowledged by Mr. Hutchinson	..	£11	8	6	Sir Edwin Saunders, F.R.C.S.	£2	2	0
By Mr. East	.. ..	10	3	0	— Daubeny, Esq. ..	0	10	0
					— Allen, Esq. (per Mr. Woodforde)	2	2	0
		£21	11	6				

"SHERMAN AGAIN."

To the Editors of THE LANCET.

SIRS,—I have this day received official notice that Mr. Sherman has abandoned his intention of stating a special case, and has paid into court the penalty inflicted by Sir John Bridge. He has also expunged the prefix of "Dr.," which was painted up in the entrance hall and on his office door, and has substituted therefor the words "J. A. Sherman, Hernia Specialist." I remain, Sirs, yours faithfully,

A. G. BATEMAN,
June 16th, 1890. Hon. Sec. Medical Defence Union.

*** In the paragraph under the above heading, published last week, page 1341, a typographical error occurred. The word "artificially" should read *artistically*.—ED. L.

COMMUNICATIONS not noticed in our present number will receive attention in our next.

COMMUNICATIONS, LETTERS, &c., have been received from—Mr. Lennox Browne, London; Dr. Bristowe, London; Dr. Bateman; Dr. Bronner, Bradford; Major-Gen. Collinson; Dr. Squire, London; Dr. Holman, Reigate; Mr. Samways, London; Mr. Evans, Northampton; Dr. Adam, West Malling; Mr. P. A. Lloyd, Carlisle; Mr. Bartlett, Birmingham; Dr. A. J. Bolton, Kustendjie; Dr. L. Wickham, Paris; Mr. Pugin Thornton, Canterbury; Mr. A. Duke, Dublin; Dr. Thompson, North Devon; Mr. R. Broom, Glasgow; Mr. Nankivell, Butterworth, South Africa; Mr. Holding, London; Mr. Box, Tongue; Messrs. Christy and Co., London; Mr. T. F. Raven, Broadstairs; Dr. Ranking, Tunbridge Wells; Mr. Watt, London; Mr. Gooday, London; Messrs. Collinson and Viney, London; Dr. Pendleton, Hampstead; Dr. J. W. Collins, London; Mr. J. Hector, London; Dr. Silk, London; Mr. J. B. Smith, Dulwich; Dr. Rentoul, Liverpool; Dr. Horrocks, London; Mr. W. B. Moore, London; Mr. Robertson, Oldham; Dr. Johnson, Yorks; Dr. A. Ruffer, London; Prof. Mikulicz, Königsberg; Mr. Rushworth, Halifax; Mr. Heim, London; Mr. Sturdie, Essex; Mr. Birchall, Liverpool; Dr. Abraham, London; Dr. Moorhead, Notts; Dr. Macnaughton Jones, London; Dr. T. J. Mays, Philadelphia; Messrs. Dornier and Co., London; Mr. T. H. Gough, Devonport; Dr. Waller, Kirkby Lonsdale; Dr. Campbell Pope, London; Mr. Benthall; Mr. Madden, London; Dr. J. M. Granville, London; Dr. Ralfe, London; Mr. B. Walker, Spondon; Dr. T. Cameron, Hull; Dr. F. Beach; Mr. Makins, London; Dr. Voysey, Chatham; Dr. J. Mac Munn; Mr. Rivington, London; Dr. Bowhay; Dr. Foulerton; Messrs. Wright, Dain, and Co., Birmingham; Dr. Savill, Harrow-road; Messrs. Oppenheimer and Co., London; Dr. Giddings, Beckenham; Messrs. Knight and Co., London; Mr. Brown, Yorks; Mr. Oxley, Wisbech; Messrs. Lee and Martin, Birmingham; Mr. Kempe, Edgbaston; Messrs. G. and G. Stern, London; Miss Murray, Huddersfield; Messrs. W. H. Smith and Son, London; Mr. Hornibrook, Bloomsbury; Messrs. C. Tayler and Co., London; Mr. Brooker, Bootle-cum-Linacre; Messrs. Oliver and Boyd, Edinburgh; Mr. Clark, Sevenoaks; Messrs. Thacker and Co., London; Mr. Dowell, London; Mr. Stewart, London; Dr. Turner, Edinburgh; Mr. Pentland, Edinburgh; Mr. Freeman, London; A Constant Reader and Subscriber; Senex; L. T.; Manager, Furnishing Co., Hackney; Annual, London; Manager, Liverpool &c. Insurance Co., London; G. F., London; J. B., London; Secretary, Maternity Hospital, Manchester; L. B. B., Limehouse; Secretary, Chichester Infirmary; S., Leeds; Clericus; Inquirer, London; Secretary, Borough Hospital, Birkenhead; Secretary, Borough Hospital, Bootle; An Old Subscriber; M.D., Lincoln's-inn.

LETTERS, *each with enclosure*, are also acknowledged from—Dr. Dakin, London; Mr. Tully, Hastings; Dr. Harley, London; Mr. Edwards, Tunstall; Mr. Bell, Lowestoft; Dr. Goodall, St. Ives; Mr. Smith, Darlington; Miss Ungent, Cambs; Dr. Wilson, Redbourn; Mr. Ogg, Newcastle-on-Tyne; Mr. Challand, Derbyshire; Dr. Charteris, Glasgow; Mr. Purland, Woolwich; Dr. Griffiths, Carnarvon; Mr. Hunter, Bo'ness, N.B.; Mrs. Moore, Geneva; Dr. Ritchie, Otley; Dr. Davies, Kensington; Dr. Davies, Llanrwst; Mr. Cox, Mill Hill; Dr. Prowse, Cornwall; Mr. Fox, Manchester; Mr. Culpeck, Croydon; Mr. Bennett, Birmingham; Mr. Keyworth, jun., Lincoln; Mr. Hughes, jun., Ashton-under-Lyne; Dr. Fausset, Tamworth; Mr. Weddell, Newcastle-on-Tyne; Mr. Reid, Canterbury; Dr. Wood, Pontypool; Messrs. Baily and Co., London; Dr. Phillips, Victoria, Australia; Messrs. Hooper and Co., Covent-garden; Mr. Savage, co. Antrim; Mr. Rees, South Wales; Mr. Page, Alfreton; Dr. Barder, Clifton; Dr. Bailey, Exminster; Mr. Hardman, Oldham; Mr. Baldwin, Rotherham; Mr. J. Startin, London; Mr. Hutcheson, Glamorgan; Messrs. Debenham and Co., London; Mr. Heywood, Manchester; Mr. Spark, Whitechapel; Mr. Brown, Norwood; Dr. Windle, Ovenden; Mr. Bedger, Sheldon; Mr. Lake, London; Mr. Norton, Biddenden; Mr. Miller, Glasgow; Rev. Mr. D'Orsey, Redcar; Mr. Oliver, London; Mr. Milne, Ladywell; S. T., London; Duncan, London; Radius, London; Udith; Dr. G., Cornwall; M. C., London; Secretary, Clinical Hospital for Women, Manchester; A. B. C., London; Secretary, Northumberland Infirmary; Coscair, Weston-super-Mare; Secretary, West Bromwich Hospital; Skotophilus, London; Secretary, Royal Mineral Water Hospital, Bath; F., London; Medicus, Burton-on-Trent; J. W., New Cross; J. B., London; Medicus, Soho-square; Secretary, Royal Albert Asylum, Lancaster; Linden, London; A., Leeds; Iodate Compounds Co., Clapham; Templar, London; M. & P., London; Superintendent, Newcastle-on-Tyne; Eric, London; Medicus, London; Excelsior, Dover; A. B., London; Magnil, London; M.R.C.S., London; H. R., Colchester; H. F. K., London; A. M. D., London; Secretary, General Infirmary, Staffs; Y. A. J., Walbrook; Radix, London; Alpha, Bedford; S. T., London; Pepsalia, London; Medicus, Balham; Solent, London; Alpha, London; Medical Officer, Orkney; Secretary, Jessop Hospital for Women, Sheffield; Beta, London; Physician, Child's Hill; Practicus, London; Zeta, London; P. & S., London.

NEWSPAPERS.—*Midland Evening News, Sussex Daily News, Household Words, Manchester Guardian, Echo, Glasgow Evening News, Men of the World, Manchester Courier, Dundee Advertiser, Public Opinion, Newcastle Chronicle, Western Daily Press, Manchester Examiner, City Press, Kilkenny Journal, Sunday Times, Builder, Newcastle Journal, New York Herald (London), Mining Journal, Broad Arrow, Sheffield Daily Telegraph, Metropolitan, Reading Mercury, Liverpool Daily Post, St. James's Gazette, Windsor and Eton Express, Architect, Bradford Observer, West Middlesex Standard, Chemist and Druggist, Spectator, Surrey Advertiser, Weekly Free Press and Aberdeen Herald, Scotsman, Law Journal, Leeds Mercury, West Middlesex Advertiser, Local Government Chronicle, Kendal Mercury and Times, Edinburgh Evening Dispatch, Bristol Mercury, The Journalist, Shrewsbury Chronicle, Guy's Hospital Gazette, North British Daily Mail, Hertfordshire Mercury, Yorkshire Herald, Manchester Evening News, Belfast News Letter, Lancashire Evening Post, Torquay Times, Life, Southampton Times, Weekly Telegraph (Sheffield), Glasgow Herald, Galignani Messenger, Sleaford Gazette, Admiralty Gazette, Essex Newsman, North Middlesex Chronicle, St. Pancras Gazette, Berkshire Chronicle, Presbyterian Messenger, Overland Mail, North Star, Lincolnshire Chronicle, Northern Echo, Birkenhead News, &c.*, have been received.

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Answers are now received at this Office, by special arrangement, to Advertisements appearing in THE LANCET.

Terms for Serial Insertions may be obtained of the Publisher, to whom all letters relating to Advertisements or Subscriptions should be addressed.

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Agent for the Advertisement Department in France—J. ASTIER, 66, Rue Caumartin Paris.